

The CHILDREN'S NEWSPAPER

AND CHILDREN'S PICTORIAL

The Story of the World Today for the Men and Women of Tomorrow

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WHAT THE WIRELESS MEN CAN HEAR

HOW FRANCE WRONGED A MAN

AND HOW SHE HAS REDEEMED HERSELF

Thrilling Story of Alfred Dreyfus

THE TERRIBLE EFFECT OF PREJUDICE

Three lines in the newspapers recently added the last touch to a story which twenty years ago convulsed the whole of France and held the world breathless. These were the lines:

At a prise d'armes at the Invalides, Lieut.-Colonel Dreyfus was decorated with the rosette of the Legion of Honour.

The story is worth retelling, for it shows how a great nation, under a wave of excited prejudice, may lose its head and commit bitter wrongs, but how, in the end, truth wins its way.

A Terrible Experience

Alfred Dreyfus was an Alsatian Jew who joined the French Army, became a captain at thirty, and gained distinction and an appointment on the General Staff. At 35 he was suddenly arrested, tried for selling secrets to Germany, found guilty, and publicly degraded, his epaulettes being torn from his shoulders in the presence of the army on parade before he was transported to the terrible Ile du Diable, off the coast of French Guiana, a punishment worse than death. His ruin seemed complete.

At that time feeling was running strong in France against men of Jewish blood, stirred up by newspapers which existed for the purpose, and the public were delighted to have a Jew to punish.

The Honest Colonel

But the truth was that Dreyfus was entirely innocent. His friends knew it, and for four years they worked incessantly to secure a fresh trial and release him from degrading punishment in a tropical convict settlement. But the French War Office staff resisted all appeals. Many of them were in favour of overturning the Republic, and used the prejudice against Jews to win popularity and prepare for a revolution.

Among them, however, was one honest, clear-sighted soldier, intent on finding out the truth, Colonel Picquart, and he examined the papers on which the sentence against Dreyfus was based, and felt certain that rascality had been at work, and that the prisoner of Devil's Island was innocent.

Truth Comes Out

When Picquart made this opinion known he was at once given a dangerous command in North Africa against the Arabs, where he was likely to be killed.

The French, like all the Latin nations, are rather easily excited, but they are never stupid, and they love justice. So

They Went Together Through the War



This splendid steed and its rider, Trooper Booth, left the Horse Guards for France in 1914, and went through the Great War together. They still stand day by day at the Horse Guards in Whitehall, heroes both

they began to inquire further into the case. A brother of Dreyfus accused Major Esterhazy, a member of the Staff, with forging the tell-tale papers. Zola, the novelist, joined the side of Dreyfus with such fierce passion that he had to flee from the country to escape conviction for libel; and M. Clemenceau, the great Premier of France today, made a fine stand for justice against prejudice.

As the truth became clearer, Colonel Henry, one of the chiefs of the War Office Staff, confessed that he had forged the documents which led to the conviction of Dreyfus.

The only course now open was to bring the prisoner back to France, but prejudice was not yet defeated. If once it possesses the mind of a nation it is not easily uprooted, and so blindly determined were the enemies of Dreyfus that they made the second trial a painful farce, and it was not till Dreyfus had again been found guilty that he was finally "pardoned" by the French President for what he had not done.

Of course, the case could not end like that. Prejudice is swift and fierce; justice is often slow, but it is sure; and the French are logical and sound in the end. Again they brought the case forward for a third trial. The last judgment was set aside, and Dreyfus was declared innocent.

His honour was entirely cleared. He was restored to the army as a major. His honest defender, Colonel Picquart, who happily had not been killed in Africa, was made a general, and when Clemenceau first became Premier he made Picquart Minister of War. Dreyfus was awarded the Legion of Honour, and now he receives a new proof of the trust of France.

The whole story is a clear warning against the bitter wrong that may be done by wild prejudice; and it points out the lasting honour that crowns those who love truth, search for it diligently, and serve it loyally. As we all help to govern our country it is a lesson to us all.

J. D.

IN A SWARM OF LOCUSTS

Black Hordes Like Clouds

MYSTERIOUS WORD OF COMMAND

By a Correspondent in Nigeria

Here is a graphic description of a flight of locusts in a letter recently received from a correspondent in Nigeria.

I had never seen a swarm of locusts, and to show you that they are not frequent I may mention that this flight is the first after about 20 years.

Natives look upon it as an omen from Allah, and they are not sure whether it is connected with the death of the Emir of Kano, which occurred recently, or has been sent them as a punishment by Allah for being lazy. But all are agreed that it means famine in the land.

The wailings and lamentations were great. To see men in their long robes standing on rocks with their hands up, wailing to "beat the band," while the whole world was darkened by the air full of myriads of locusts was really a Bible picture come to life.

Walking Through a Living Storm

It happened at four in the afternoon. I was having tea and reading a harmless story when suddenly it got very dark, and I thought my eyesight had become queer. Then I heard a weird and awful noise, so I went out to see about it, and found a raging blizzard of locusts, so thick that the sun looked like a burnt hole in a blanket that swirled round till it made you feel giddy.

They were everywhere—as high as you could look and as far as you could see. Through the mist they made against the hills you could see hordes and hordes drifting past like clouds, sometimes so thick as to appear black, and then thinning out a little, just like a bad thunderstorm in the mountains.

Walking among them as they flew they never hit you, but if you stood still you became at once quite covered with them. They have high-up eyes and wear an expression of continued surprise.

At the Word of Command

They must have a wonderful generalissimo, because they all sat down in obedience to some mysterious word of command. Directly they sat the light went up, and all the rocks turned to a puce colour—rocks, trees, grass, everything.

They stayed all night, and really behaved very well. Either they were not hungry, or they did not like our salad, for though they cut the grass very nicely they left the trees still green if somewhat pinked.

They did not go very early next morning, apparently because their king was not ready to get up; but suddenly the word of command must have come, and, with a roar the whole world buzzed off, and as it rose I felt as if I were going down a shaft in a cage.

RESERVOIR MYSTERY

Three Million Gallons of Water Disappears

STORY OF A CRACK IN A MAIN

The spells of acute drought through which various parts of the country have passed this year have led to serious shortage of water. A notable instance is that of Llanely, where the important tin-plate industry was practically brought to a standstill by the scarcity.

Llanely is a seaport and commands the resources of an ocean if they could but be used. Can they? Can sea-water—which in its natural state is not suitable for industrial use—be adapted to the purposes of manufactures which have raised the town from the status of a village to that of a highly important industrial centre?

The attempt is now being made to employ sea-water for steam-raising, and there is a possibility, if the project succeeds, that the difficulties experienced this year may lead to a revolutionary improvement as to the source of supply, and make Llanely and other seaside manufacturing centres independent of rain water for industrial uses.

Reservoir Runs Dry

But the strangest thing of the year in connection with water shortage has happened at Wolverhampton, where, although the supply was excellent, a great reservoir containing three million gallons ran dry, and the larger part of the busy town was deprived of water.

The precious fluid reached the reservoir and ran profitlessly out of it, through no structural fault of the reservoir; and as there was no flooding of the land through which the water was conducted after leaving the reservoir, the whole thing was a mystery.

The puzzle has been solved, and the explanation would do credit to the invention of a novelist. Excavation shows that the great main carrying water through the centre of the town was badly cracked, allowing the water quietly to escape. But there was no external evidence of the damage, no flooding, no bursting up of the roadway as generally happens in such a case.

No; all unsuspected, an old disused culvert existed below the water main, and as the water escaped, so it entered this culvert and was quietly drained away out of thirsting Wolverhampton.

A 2000-MILE RAILWAY

Through Desert Australia by Train

The Government of the Australian Commonwealth is considering an offer to build a railway from the south of Australia to the north, right across the great Australian desert. The distance would be 2000 miles, the cost £8,000,000, and the time for laying the line three years.

Already a railway runs southward round Australia from east to west, connecting Brisbane with Perth, and crossing a part of the country once regarded as almost impenetrable desert. From south to north a telegraph line is established along the suggested route.

The ends of the proposed railway would be Adelaide in the south, and Port Darwin in the north. The first adventurers across this desert region perished miserably; one of these days the journey may be a three-day trip.

A CLOSE SHAVE

One of the richest men in America is Mr. Charles M. Schwab, who was one of Mr. Carnegie's right-hand men at Pittsburgh Steel Works. The other day he signed a cheque for £800,000, and then went out to get a shave. When it was over he found he had no money in his pocket, and was kept waiting till a friend came in to pay for him.

Spying on a Protozoan

LITTLE GIANTS SEEN IN THE MICROSCOPE

Discovery in the Greatest Family of Living Things Upon the Earth

HOW GIANTS AND DWARFS GO DOWN IN THE BATTLE OF LIFE

BY OUR NATURAL HISTORIAN

A body of the foremost scientists in the world has been sitting down to discuss the great affairs of creatures so small as to be invisible except in the microscope, and a pretty fairy tale it makes, with every word true.

Protozoa, the tiny-teeny things that make up the animalcule world, are the heroes and heroines of the investigation—incredibly minute, perfect little organisms, consisting of only a single cell, yet lovely in outline, complex, wonderful in design. They are everywhere, in salt water and fresh, in tropical seas, in frigid seas, in the water of the wayside pond, in living organisms, in dead matter. In an ounce of certain kinds of sand we may find a million and a half of them, each in a miracle of a shell.

Spying in a Microscope

Now, Mr. Heron-Allen has been spying on these microscopic little creatures, and trying experiments with them, with astonishing results. They form their shells from mineral matter in the water, but he treated them in such a way that they altered their method of gathering their material and exercised discretion in their choice, so that they produced a highly-specialised shell.

Moreover, by changing the composition of the water in which they live, he made them alter the character of their organs, and he actually found that in these smallest of small living things there is a tendency on the part of some to become giants and on the part of others to become dwarfs! What are we to say of that? Only this—that these discoveries among the protozoa only reveal the great harmony of life in nature.

Giants Everywhere

For, as Professor Keith has shown us, disease of certain glands in human beings renders men unable to stop growing, while disease of other glands renders them unable to develop beyond the dwarf stage. But some years ago Professor Denny demonstrated that this giantism and dwarfism is not peculiar to man. What we see happen to a man or woman in our own lifetime, happened, he thinks, to whole orders of animals in the distant past.

No matter where we turn, every order of animals has a history of giants in its pedigree. Frogs and salamanders grew monstrous; the little coneys of the Psalmist grew as big as sheep; reptiles grew to appalling dimensions, some of them to the length of 180 feet. There were giants everywhere, though they are all dead and gone, save the elephants and the whales.

It is believed that, as certain protozoa incline to giantism, so it is in every order of life at times. A type of animals is mastered by a tendency to grow.

Giants of Our Day

The old monsters were victims of what is called a sort of momentum, as the result of which successive generations continued to grow from age to age, until they attained proportions far in excess of their usefulness, and so died out, leaving the race to the smaller and swifter. There are only two

giants left now—the whales and the elephants, and they are vanishing slowly before the terrible weapons of puny man. Human giants and human dwarfs go down in the struggle for life like the frightful tinoceras, a mountainous mammal of old.

The tendency to grow excessively big may still be operative among animals today, but not necessarily influencing the body as a whole.

It is thought that this uncontrollable impulse determines the size of immense freakish organs with which certain animals and birds are furnished. The gigantic and grotesque beak and helmet of the hornbill are cases in point; so are the amazing, and apparently useless tusks of the babirusa. There, apparently, we have organs in which an overmastering momentum of growth is still at work, here and now, and the result will almost certainly be the extinction of these birds and animals.

Two Make Four & Four Make Eight

When this great development of beak, helmet, and tusks first began it would undoubtedly serve a useful purpose, but the gland which secreted the fluid, checking growth within reasonable limits, gradually lost its power to set a boundary to development. What happens in the individual life of a giant, human or animal, has happened over millions of years to whole groups of animals, and every such group, except the whale and the elephant, has become extinct.

But how does this line of thought help us in our appreciation of the protozoa? Those that show a tendency to giantism may, and almost certainly will, leave successors, for these little things multiply by division. When they reach maturity one divides into two, two become four, and so on, and zoologists play with the idea that here, in the protozoa, is immortality—that the protozoa of today are part of the substance of the first protozoa which divided and became two in the very beginning of things.

Creatures that Turn into Rocks

But we must believe that the giants, the unnaturally developed protozoa, must eventually die out, and leave the way clear for the normal. Smallness has paid these tiny animals. They always have been, and they remain, the most numerous things in the whole scheme of life. Their numbers are so vast that their dead bodies and shells, turned to fossils, form part and parcel of the crust of the earth; they form hills and mountain ranges. Every bit of limestone is made up in great part of the fossil remains of these tiny creatures which once scurried through the waters.

So minute and yet so marvellous, these microscopic living entities are subject, then, to the same astonishing cycles of impulse, tendency, and abnormal development which we find among the greatest and most highly-organised animals and in the king of all animals, man himself. Who would not have a microscope and study a protozoa?

E. A. B.

ICELAND AND ITS 1000 YEARS

DISCOVERY OF LARGEST CRATER KNOWN

Splendid People of the Land of Ice and Fire

HOME OF THE VIKINGS

Civilisation is a thousand years old in Iceland, yet the country remains a land of perpetual wonder.

Now two scientists have found there what is declared to be the largest volcanic crater in the world—the mouth of an old volcano measuring five miles long by three miles wide.

When we realise that that crater was made by the earth's internal violence, and that the huge opening was made in the rocky surface to allow molten lava to pour out, the facts are staggering.

But our knowledge of Iceland teaches us to expect unparalleled happenings there, for Iceland is the true home of volcanoes. It has over a hundred of these fiery mountains, and of these 25 have been active within the time of man.

Thousands of Craters

The fact that old craters are numbered by the thousand, and that lava issues from hundreds of them, shows how widespread is the activity of the boiling rock which seethes and flows beneath the surface. We hear much of Vesuvius and Etna, because they threaten great centres of population, and because we remember that Vesuvius in 14 days swallowed up Pompeii and Herculaneum.

But there occurred in the Icelandic volcano, Skapta, in 1783, an eruption which produced in 25 days more lava and volcanic dust than Vesuvius and Etna have thrown out in 3000 years.

The material flung forth from this raging crucible of fire and fury was sufficient to form a mountain as great as Mont Blanc. The mountain's icy covering of glaciers was turned to rivers, but the boiling lava followed the true rivers to their beds, and turned them into steam, dried them up, dried up the great lake of Skapta, reached the sea, and made it boil far along the coast, and destroyed every living thing in its waters.

A Boiling Cataract

The lava flow was in places 600 feet wide and 600 feet deep, and, evaporating the water of the cataracts, took the place of the banished stream, and became a cataract of boiling mineral.

And yet, in that land of ice and fire, of boiling water and steam rising from a thousand vents, forming the most amazing geysers in the world—in this land of terrors a wonderful people live. They were Vikings, and in this bitter cold they built up a splendid civilisation. When all the rest of Europe was withering in ignorance, these people created a marvellous literature, and it endures till now, with no break for a thousand years.

They cannot master the volcanoes, but they master the climate sufficiently to enable them to snatch harvests from the warmer plains in the short, intense summer, to overcome the long winters when the daylight lasts but four hours out of 24. They plough and sow and reap and mow; they raise stock and send it to us; they breed magnificent ponies, which are the descendants of the ponies taken there by the Vikings. Columbus knew these people, and learned of America from their writings.

A TERRIER IN A FIX.

A little terrier belonging to a school-girl of Southwell, in Nottinghamshire, has had a queer experience.

He went down a badger-hole and was caught fast, being imprisoned underground and unable to move either forward or backward. The poor dog remained in this position without food or water for four days before he was discovered.

Photograph on page 12

FINGER-TIPS AS A WITNESS

BEST PROOF KNOWN OF A MAN'S IDENTITY

How a Finger-Print Saved a Life NO TWO HANDS ALIKE

Most people know that when men are convicted of serious offences impressions of their finger-tips are taken by the police, and that, should the same men be again arrested, they can be identified by these finger-prints.

Until recently this method of identification was confined to criminals, but when America entered the war the finger-prints of every sailor and soldier she sent out were recorded and indexed. The impulse thus given to the movement creates another and it is now proposed to extend the finger-print system



Will West, burglar William West, murderer

Portraits of two men who could only be identified by finger-prints

throughout the American nation, and to record the finger-prints of all citizens.

If this were done, wills and other legal documents would be signed with fingers as well as by pen, and there could be no disputed signatures or forged documents. Rascals would be prevented from posing as other people; kidnapped children could be infallibly identified; and runaways could be brought to justice, though hiding far from the scene of their misdoings.

Will West and William West

Finger-prints have done wonders in bringing men to justice, and a case has lately occurred in which they saved life. Two negroes, each named West—Will West and William West—were under arrest at the same time. Will was accused of burglary, William of murder, and William's photograph and measurements were declared to represent Will West. But when finger-prints came to be taken, they were found to be entirely different, and the chance of a grave miscarriage of justice was averted.

What are these wonderful prints? We can see them for ourselves on our own hands. They extend from the wrist across the palm to the tips of the fingers. They are a series of tiny ridges and valleys. In the ridges lie small cones, or nipples, really the openings to the sweat glands; beneath them are delicate organs of touch.

No Two Hands Alike

These are Nature's provision to enable us to grasp things; the ridges to afford friction, the sweat glands to moisten the hands and make them adhere to the object seized. The same kind of apparatus is visible in the hands of monkeys, in the grasping tails of New World monkeys, and in the tail of the tree-climbing porcupine—ridges for friction, tiny sweat glands opening out on the ridges to afford tighter grip.

Now, it happens that the finger-prints of human beings and monkeys are totally unlike those of any other. The arrangement of whorls, spirals, loops, curves, and rings is peculiar to each hand; no two human hands have ever been found alike.

The finger is dipped in ink and pressed on paper, and there is the lasting signature beyond contradiction.

It is a wonderful fact, throwing an astonishing light on the immense advance of man beyond all other creatures, for even the plan of lines and cones on his hands and fingers is intricate and complex beyond all others.

TRUE BIRD TALES

Kestrel that Came Back to Its Cage

BUSTARD THAT FOLLOWED A LADY LIKE A DOG

We have these four records of the ways of birds on unimpeachable authority.

Several jackdaws were seen removing the eggs and young of sparrows from nests built under the eaves of a house.

A sparrow-hawk was seen in the market street of a busy town swooping down on a group of sparrows picking food on the ground, and carrying one off without even stopping in its flight.

A captive kestrel got so fond of its cage that it used to go out and in. At first it came out into the room and got its food there, and went back to its quarters. After a while the cage was taken out of doors and left open. For several months the kestrel went out during the day and came back at night.

Calling a Bird by Name

A young little bustard, a bird that occasionally visits Britain, was taken from the nest in France and reared in captivity. It was fed on grasshoppers, and ate huge numbers. It became so tame that it was allowed to run freely in the garden, where it hunted for insects. After a while it wandered beyond the bounds of the garden, but it would come back when called by its name. It recognised people both by sight and by the sound of their voice. It used to follow the lady of the house like a dog—an extraordinarily quaint sight.

This taming of a little bustard is the most striking of these four stories, for the bird is naturally very shy and distrustful. It is a famous runner, and often seems unwilling to take wing. When it rises off the ground it does so with a curious rattling noise. Our story recalls a verse in the Epistle of St. James: "For every kind of beast and bird, of creeping animals and creatures marine, is tameable, and has been tamed by mankind."

A MOTOR WORKED BY THE WAVES

An interesting new invention makes use of the force of waves to provide power, and, in fact, is a wave motor.

A series of open pipes are placed facing the waves, which rush up the pipes and drive air and water mixed into a reservoir. The water, aided by the trapped and compressed air, drives a specially constructed turbine, fitted with a safety valve so that excessive pressure cannot do any injury. This invention is the latest of hundreds of devices by which attempts have been made to utilise the enormous wave power wasted on every coast throughout the world.

KINEMA SCREEN 100 FEET LONG

Kinematograph pictures were thrown upon a screen higher than an eight-storey building at the recent Methodist Centenary celebration in Ohio. The size of the photographs was 100 feet by 75 feet, and they were clearly visible 400 feet away. The audience on some occasions numbered thirty thousand.

HOTELS FOR ANIMALS

In High Street, Westminster, Our Dumb Friends' League is running an animal's hospital for the injured.

It doctors horses, donkeys, monkeys, dogs, cats, chickens, birds, and pet mice, and takes care of the animals left by poor people who are going from home.

Next door is a home for the animal pets of the rich, paid for to be kept in luxury and seclusion while their owners are out of town. A correspondent who has been visiting both establishments thinks that the more democratic and less pampered pets are far happier than their neighbours, and he is right. The most miserable of poor dumb creatures is the dog pampered by a silly mistress.

TOADS LEAP DOWN A MINE

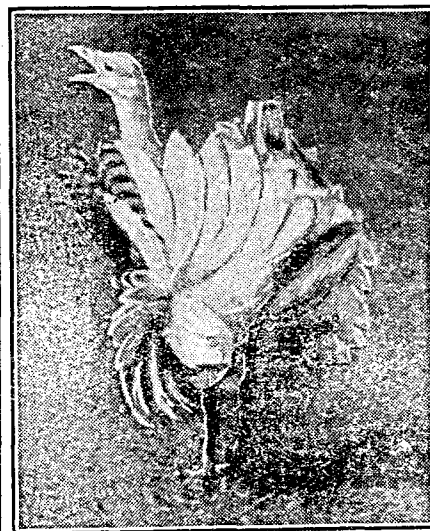
Explanation of an Old Mystery

We have already read how toads live in mines and quarries, and guessed how they got down there. There is now conclusive evidence on the point from the Transvaal, where, in time of drought, little bull frogs have been seen to extend themselves, and then leap down the shaft of a gold mine, 3800 feet.

By some mystery some reach the bottom of the mine uninjured, for they have been found alive in the galleries. The supposition is that desire for water drives the creatures to their mad leap.

But that is not the strangest fact. Barbel from six inches to a foot long have been found in the waters which collect in the mine. It is supposed that they must have been merely eggs when they fell down the shaft. Probably they were caught up by a whirlwind from shallow water, swept away, and then dropped, during a lull, down the shaft.

Showers of little frogs and fishes are often reported during high winds that sweep still waters, and the writer has seen for himself a large puddle of water swept by a blizzard into an open shop.



The Bustard—see Story in next column

THREE GOLDEN RULES

Lord Kitchener's Advice

It was like looking through an old file of newspapers to come upon a letter in the Times the other day, for it was signed "Kitchener of Khartoum."

It was, of course, from the brother of the famous general, but the sentiment of the letter might well have been his. It was addressed to the men about to take up work on the land in British East Africa, where the Government is offering free farms, and the advice the letter gave very much recalls the advice Lord Kitchener gave his soldiers long ago. This is what the new Lord Kitchener says to the men accepting free farms:

"Remember that to succeed with small capital a man must work hard, live hard, and not drink."

PLAYING IN THE STREETS

It is wonderful to think how few street accidents there are, considering the number of children in the streets. Somebody has been pointing out that in West Ham fifty thousand children play in the streets. We hope they will all have playgrounds some day.

FISH WHICH CHANGE COLOUR

Photographs in natural colours have been obtained of Hawaiian fishes, by Professor Longley, who remained under water for four or five hours at a time, taking submarine photographs. He found that the fishes changed their colours when they changed their surroundings, and he was able to obtain colour photographs showing these interesting variations.

NELSON IS SAFE

Famous Column Stands Secure

HOW IT ROSE SLOWLY IN TRAFALGAR SQUARE

The eye plays strange tricks. We walk amid the majesty and the beauty of our cathedrals without realising that some of their walls and pillars are dangerously leaning. Now the Nelson monument in Trafalgar Square has given the experts a little anxiety. Happily, however, an examination has revealed that the famous column is safe, though there are a few slight cracks in the statue itself, which is now being washed, as shown on page twelve.

But it is as well that we should be driven to examine our monuments. It required the Trafalgar centenary to reveal the fact that the Nelson column then really did need repair. The deadly London atmosphere has bitten deeply into the stone, and the column needed repointing, while the statue's solitary arm was seen to be fractured. Two months' work repaired the mischief, and there is no reason now to fear.

The statue should last long, for it took an age to get it into position. Nelson had been for 33 years in the crypt of St. Paul's before the memorial was begun. It took two years to get the contract placed, and three years to carry out the work. The column and statue were actually finished in 1843, but the glorious bronze lions by Landseer were not placed in position until 1867! The slow raising of the great memorial formed the subject of sneer and jest for a whole generation.

Napoleon's Metal

Artistically the statue of Nelson is bad, but it cannot be seen from close range, so that the defects are not obvious. The figure is not all one piece, but built up in sections. Nelson is 17 feet high, and weighs nearly 18 tons. The Corinthian column upon which he stands is 176 feet high, and based on a fine pedestal of 36 feet. The stone is granite from Dartmoor, but the bronze reliefs around its base, depicting battle scenes from the life of the conquering seaman, are the very stuff of history.

We can place our hands upon them and say, "Here is something Nelson saw and handled," for all the metal is from guns captured by him in his battles. Every bit of metal in these reliefs was captured from Napoleon.

But Landseer's lions are the artistic glory of the whole scheme. They are among the finest works of native art that we possess, and enough in themselves to ensure immortality for their creator, the "Shakespeare of the world of animals," as he was called.

THE LARGEST LOCK IN THE WORLD

Lake Superior and Lake Huron are at different levels, necessitating a lock between them for the passage of vessels. In 1912 a new lock was begun at a cost of about £700,000, and this has now been completed.

It is the largest lock in the world. The huge gates span a width of 80 feet, and the foundations of the lock are built into the solid rock floor of the St. Mary's River Falls. Vessels can go up or down from one level to the other, a difference of 20 feet, and the building of the lock is considered one of the great engineering feats of the world.

KILLING THE WEEDS

As no vegetation grew round the Owen's Lake, in California, the Southern California Railroad Company had the water analysed, and found that it contained a large percentage of chemicals. They therefore decided to use it as a weed killer to keep their track clear of vegetation. Oil cars were filled with the water of the lake, which was sprinkled along the track with great effect. In a climate like that of California weeds are the bugbear of railway companies.

MOTHER NATURE'S LANTERNS

Strange Sight in an Old Tree

MYSTERY OF PHOSPHORESCENCE

By Our Natural Historian

Children have set wise men thinking and talking. Some of them have found at Spaldwick an old tree, which at night gives off a wonderful bluish bright light. They have been cutting off pieces, and using them as torches, and taking them to light their bedrooms.

The explanation is simple when we say the light is phosphorescence, that it is given off by the spores and substance of a fungus which attacks rotting timber. It is not generally known that nearly all substances are to some extent phosphorescent—that is to say, that, receiving light quickly, they give it off slowly, for a little while, in the dark.

Certain rubies, after being exposed to the sun, glow like live coals in the dark—for a short period. But this phosphorescence of the fungus on the tree is permanent, as long as the wood is there to feed the parasite, and there are heat and moisture sufficient. How it came there we cannot say, but we know that it is the product of bacteria, which are associated with the decay of animal or vegetable substances.

Magic Lanterns of the Sea

Gnats, which have made firemen mistake their swarms for outbreaks of fire, are often attacked by a phosphorescent glow, and in that case they are found to be diseased. But the same sort of light arises where there is no disease. We find it in earth-worms, in centipedes, in earwigs; it is magnificent in the glowworm and firefly; it lights the very ocean when the noctiluca are stirring on the inshore waves at night, or when the tiny deep-sea creatures swarm upon the ocean surface.

And that light is not the product of disease, nor is it when brittle-stars gleam in the waters, when jelly fish and other stinging medusae light their wondrous lamps, nor when deep-sea fish, with incredibly refined lenses for seeing, kindle their magic lanterns in the abyss of the ocean. The sea-pen possesses the strange power, and so does the deep-sea angler fish, of luring unsuspecting fishes towards his great gaping mouth.

Old Bat Mystery

One writer has told us of a startling experience he had when bat-hunting in an old hollow tree. Peeping into the interior he was terrified to behold what seemed a blue furnace within. The whole interior, rotten and covered with fungus, was aflame with phosphorescence. The merest touch transferred the phosphorescent light to a hand or a garment, and it must have lighted up the bats, as they flew, with patches of fungus adhering to their bodies.

The time has evidently come to clear up a very old mystery. A few years ago the papers thrilled with tales of luminous owls, mysterious birds which flew on shining wings in the midnight air. Evidently we have here the explanation. Owls nest in old rotten trees; they cannot nest in the trunk of a tree unless the tree is rotten. Fungus and phosphorescence would be there; the birds would get their feathers daubed by the fungus, and would carry the light with them to puzzle all beholders.

E. A. B.

NEWS FROM EVERYWHERE

Gathered by



John Ellis, of Lichfield, has driven the local bus up and down the streets of that ancient little city for fifty years.

About eight thousand inventions were sent to the Air Inventions Board during the War, but only a few were useful.

There are eight million carcasses waiting to leave New Zealand when ships can be found.

India's Fight with the Animals. During 1917, the last year for which figures are available, 2176 persons were killed by tigers, wolves, elephants, hyenas, boars, crocodiles, and other wild animals in India.

Hamlet in a Tall Hat. In Japan, Shakespeare is now being played with a distinctly Japanese setting, the scenes being laid in Japan; and on one occasion recently Hamlet was dressed in a modern tail coat and a silk hat.

Aeroplanes that will Fly. German aeroplanes are now being offered in large quantities in Denmark, and the advertisement in one paper says: "It is quite possible to fly in them."

America's Long Oil Pipe. The longest pipe line in the world now extends from the oilfields of Oklahoma and Kansas to the distributing terminus at East Chicago, and is 800 miles long and a foot in diameter.

Cattle Stop the Building of Houses. At a place in the United States where extensive building operations were going on, a herd of cattle drank up 10,000 gallons of water, and as this was the only available supply, there was not enough water to mix the cement, and building had to cease.

Stopping the Braying of Mules. It is said that the Americans stopped the braying of mules during the war by a simple practice which prevented them raising their tails at certain times. If a mule cannot raise its tail it is unable to bray.

A Long Bus Ride. The buses of the London General Omnibus Company run over a quarter of a million miles every day. This means that every day they complete a journey as far as from the earth to the moon; and every year the journeys equal the distance to the sun.

Iceland's Water Power. Iceland is fast becoming a very important country. Its water power is being developed for manufactures, and recently large deposits of sulphur and brown coal have been found, for which there is a great and growing demand.

Tax on Poles in Japan. England has had its poll tax, a tax on each head of the population, but Japan has a pole tax, levied on every electric pole set up. There is now an agitation to get the tax abolished, as it is a serious interference with the development of the light and power industry.

China's Lack of Harbours. China has over 2000 miles of coast line, but very few harbours suitable for trade purposes, largely because they lack adequate means of communication with the interior. Shanghai, with a population of 700,000, is the only port with a natural waterway extending far into the interior.

Japan and the Straphangers. London is not the only place where straphanging in public vehicles is common. They have it in Japan, and a Japanese municipality, realising that a street car will hold more people standing than sitting, has removed the seats and put in more straps.

Helium for Airships. Helium, the non-inflammable gas which is to replace hydrogen for airships, is being made in increasing quantities. The plant at Petrolia, Texas, has now a capacity of 30,000 cubic feet a day, and the quality and quantity of the gas are steadily increasing.

THERE GOES ENGLAND

A Man of the Race

LORD GREY FOR WASHINGTON

Great Britain needs to be represented in the great English-speaking community of the United States by the most complete example of what is best in her that can be found in any man. She ought to feel "This man is our race at its best," and America ought to be able to feel it also. We should feel of such a man, when he appears, "There goes England."

The search for the right man has been a success, for Viscount Grey, long known as Sir Edward Grey, has gone to Washington on his country's behalf.

For years before he retired from the office of Foreign Minister of Great Britain, worn down in health and fearing the loss of his sight, Viscount Grey was unquestionably the leading international statesman in Europe.

He it was who cleared our country from the guilt of taking any part in causing the Great War. He did all that could be done to preserve peace. But when a war of ambitious greed was forced on the world, he stepped across the tyrant's path and said, in the name of his country, "No, you don't!"

It was that step that saved the world. The tyranny that threatened us all is now a heap of tumbled crowns.

Viscount Grey is what Sir Philip Sidney was in his day—the choicest Englishman. Well born, a scholar, entirely devoid of show, preferring quietness, he has yet that in himself which, when he speaks without emotion, affects men who hear with emotion; for it compels them to feel that here is a man thoughtful, far-seeing, sincere to the core, a truth-seeker and truth-speaker, unaffected by bawling catch-cries and the selfishness of cliques, parties, and classes. And so we are all well content to be typified in him.

GIRL COMPOSER

150 Musical Pieces at 21

Recently a new musical composition, based on John Keats' poem, "Lamia," was very successfully produced at Queen's Hall, London, and the audience called persistently for the composer to appear on the platform to receive its congratulations. In response to the call, a young lady came forward, and the astonished audience cheered the more.

Miss Dorothy Howell, this highly promising musician, was born 21 years ago in Birmingham. Ever since she was nine years old she has been composing music of all kinds, till now her original pieces number 150. One striking feature of "Lamia" was the skill with which an elaborate orchestral accompaniment was written, showing a command of the resources of all kinds of instruments.

Miss Howell is a brilliant pianist as well as a clever composer. Her future will be watched with great interest, for, though women have been fine instrumentalists and glorious singers, few women have been really great composers.

THE BOOKING OFFICE

The Great Western Railway has recently returned to its practice of booking seats on its long distance trains, and the ticket offices have now become booking-offices in the true sense of the word.

Their name dates back to the days of stage coaches when would-be passengers had to go to the coach office and book a place for the journey. With the introduction of railways the name was retained, but the office became merely a place in which to sell tickets.

THE WEEK IN HISTORY

QUEER MILLIONAIRE WHO LOVED SCIENCE

Man Who Gave England the Bible

HOW A GALLEY SLAVE BECAME IMMORTAL

- Oct. 5. French Revolution ended by Napoleon, 1795
- 6. Tyndale strangled and burned at Vilvorde, 1536
- 7. Edgar Allan Poe died at Baltimore, 1849
- 8. Elizabeth Cromwell, Oliver's wife, died 1672
- 9. Cervantes born in Spain, 1547
- 10. Henry Cavendish, English chemist, born 1731
- 11. South African War began, 1899

Henry Cavendish

HENRY CAVENDISH was one of the greatest English experimenters in science at a time when the foundations of our present knowledge were being laid. He was one of the oddest of men.

A rich uncle made him wealthy, and after a solitary life spent in his laboratory he died a millionaire, but with many of his discoveries unpublished. It is known now that he was close on the track of some of the greatest discoveries of recent science.

What he did publish was an analysis of the air involving a separation of hydrogen, an analysis of water, and a calculation of the density of the earth.

Cavendish laboratory at Cambridge University honours his work. So solitary was his life that no servant ever saw him. He left a note in the hall to say what food must be prepared; and he had new clothes at fixed periods.

William Tyndale

WILLIAM TYNDALE, a Gloucestershire preacher, gave us our English Bible.

In those days people knew the Bible stories chiefly from seeing miracle-plays. Tyndale thought they should be able to read the Bible for themselves.

But the bishops would not allow translations to be made, and when Tyndale, thanks to the generosity of a merchant, Humphry Monmouth, went to the Netherlands and there turned the Scriptures into English, using largely the versions by Luther and Erasmus as his guide, his books were burned by order in England, and he himself was strangled and burned near Brussels, as he expected to be.

Of the 15,000 copies of his Bible sent to England not one remains complete, but his work is preserved for ever in the beautiful authorised translation issued 86 years after the burning of his book.

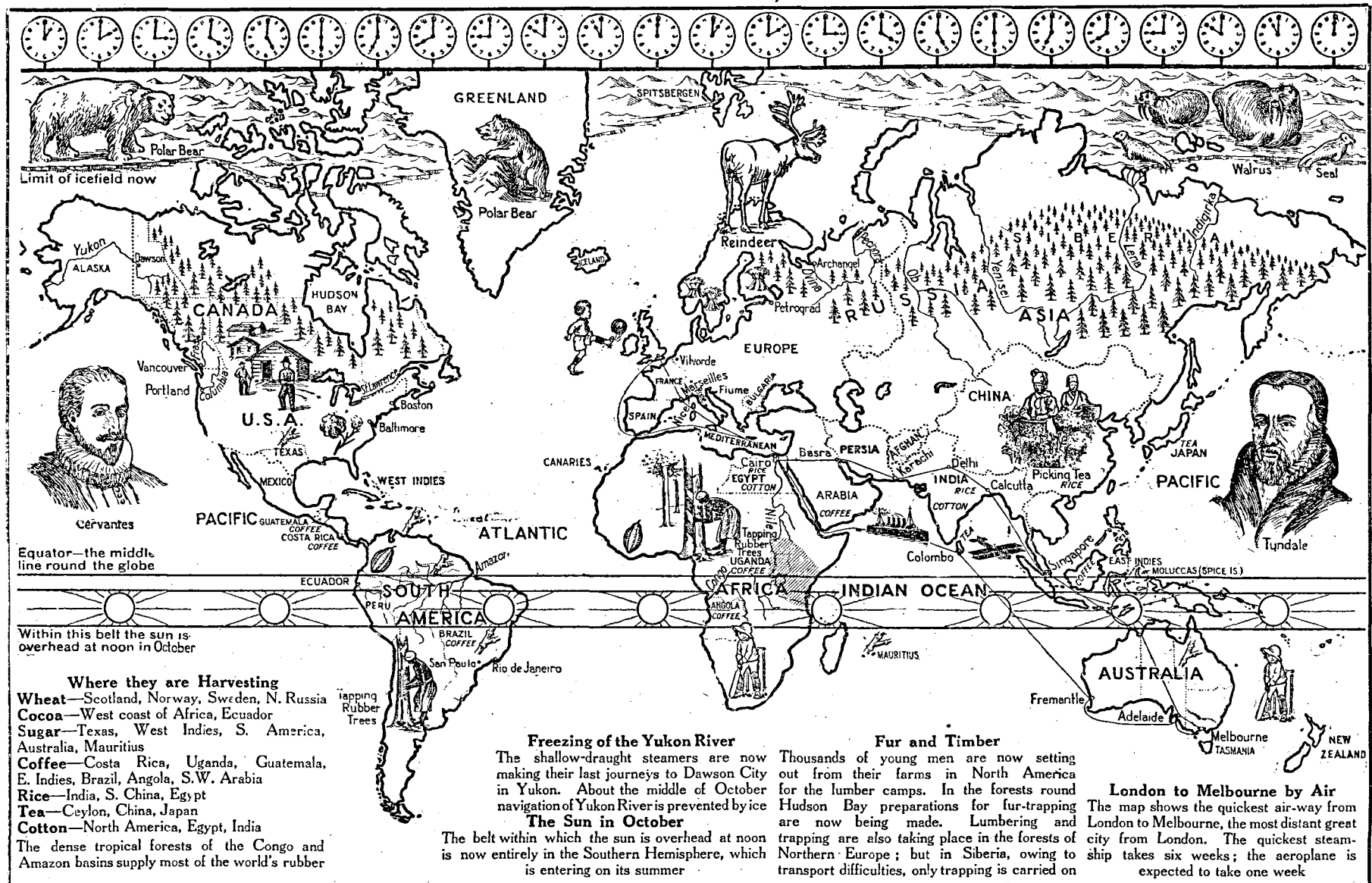
Cervantes

THE most widely read writer of the Spanish tongue is Cervantes and his best-known book the romance "Don Quixote."

When Cervantes was born we do not know exactly, but he was baptised on October 9, 1547. He was a poor man of noble blood. His early life was spent as a soldier, and five years of it as a captive in Algeria, under the cruel Barbary pirates, who made him a galley slave. Only when he had been sorely wounded as an adventurous warrior did he settle down to write poems, plays, novels, and "Don Quixote," which made fun of romantic chivalry.

Cervantes was a thorough gentleman, brave and generous-hearted, but impractical in all his ways—a kind of living Don Quixote—and it is just like all the rest of his chance doings that the book which he regarded as a pleasant trifle should have become immortal.

PICTURE-NEWS & TIME MAP OF THE WORLD, SHOWING AIRWAY TO AUSTRALIA



PARLIAMENT AND THE POULTRY RUN

A New Law of Kindness

In the past poultry sent by train have often been treated with complete indifference to the cruelty practised, but now an Act has come into operation that should remedy this thoughtlessness.

Poultry in transit, it is enacted, must be protected from exposure to bad weather, sea water, and excessive heat. They must be forwarded in suitable baskets or packages, not overcrowded, and must be stored in a ventilated place. Ships and railways are responsible for seeing that these points are attended to.

In conveyance by road, or when exposed for sale, birds must not be tied unnecessarily by the legs or carried head downwards; or if necessarily tied, they must be released as soon as possible. Parts of their body must not project from packages. Different kinds must be packed separately. If delayed in transit they must be fed and watered. The receptacles in which they travel must be cleansed after each journey.

M.P. WHO DARED NOT GO HOME

A curious incident has happened in Western Australia.

Mr. Jones, a member of the West Australian Parliament, declined to pay a fine, and was liable to arrest. As a member of Parliament cannot be arrested inside Parliament buildings, Mr. Jones remained in Parliament House for two days to avoid arrest. Then he found that it was all unnecessary, as an M.P. cannot be arrested anywhere while Parliament is in Session, and so he went home.

HAVE YOU A BATH CHAIR?

Any readers who happen to have a bath chair or a carriage for crippled children, which they do not want, will be doing a kind thing if they send it along to the Shaftesbury Society, at 32, John Street, London, W.C.1.

PICKPOCKET

Wild-Life Pictures in the Crowded City

How thankful those who toil every day in London are to get out of it! With what joy the dweller in the great city welcomes a holiday in the country far from its walls!

But London has many charms and wonders of life to reveal, and some of them may embolden her to challenge comparison with any other town in the country. We all know about the gulls and razorbills up the Thames, from the Embankment to the parks; about the swarming pigeons of St. Paul's Cathedral, now advancing in numbers and tameness till they may rank a good second to the pigeons of Venice.

We know about the grand old badgers snugly housed in Hampstead Woods, and someone reports more badgers at Clapham. But, if that list does not make provincial cities envious, the following item must.

A Man's Surprise

In Regent's Park, the wood-pigeons, wild, shy, unapproachable birds in most situations, fly down from the trees or fly up from the grass, alight upon a stranger's hand, and feed upon what is offered. And the little grey squirrel, so timorous and frightened ordinarily, will climb up an ordinary visitor, sitting down on a seat, and give the man the surprise of his life.

For the squirrel creeps over him to see if he has anything eatable in his hands, and, finding he has not, runs round to his side, clutches at his coat pocket, and again and again thrusts in his anxious little head. The squirrel has not only discovered that man in London is friendly, but that he has pockets, and that in those pockets may be nuts or other fare appealing to the palate of the little prince of the rodents.

Real wild-life pictures from the most crowded city in the world!

SURPRISE IN A CHURCH

How Evan Meredith Sang with Clara Butt

Wales and the world outside of Wales have been amused by the story of Madame Clara Butt's call, while motor-ing, in the remote Welsh valley from which Birmingham draws its main water supply.

Entering Elan church, the great contralto, who has moved the hearts of all who have ever heard the rich tenderness of her voice, was asked by the sexton to look at the organ, of which he was proud, "and," said he, "if you can sing, let us have a tune."

The sexton began to sing "Abide with Me" with her, but stopped when he heard her wonderful voice. At the end she asked him if he knew who she was. "I don't," said he. "Well," she said, "I'm Clara Butt; you may have seen my name in the papers."

"Yes, I think I have," he replied; "and do you know who I am?" "I don't," she confessed. "Well," said the unabashed Welshman, "I'm Evan Meredith, the champion singer of this valley, and I took the prize of five shillings last winter as the best soloist over 50 years old."

Whereat Clara Butt laughed heartily, and Evan Meredith now boasts that never was heard such singing in Elan Valley as when he and Clara Butt sang together.

THE DEEPEST HOLE

Sir Charles Parsons has been proposing to sink a hole in the ground twelve miles deep and to see what happens.

The deepest hole sunk anywhere hitherto is in West Virginia bored to tap natural gas. It is 7000 feet, or more than a mile and a quarter deep.

A still deeper hole is now being drilled in the same neighbourhood. The deepest coal-mine is in Belgium, and is 3773 feet.

WHAT AN INVENTOR SAVED THE NATION

Millions from the Paravane

The paravane was one of the simplest and most effective of all the inventions of the war, the best of all protectors of a ship against mines. The opposition of the Admiralty had to be overcome before it could be used, but in the end it won its way, and it is now calculated that the ships and cargoes it saved were worth £200,000,000.

The number of lives saved must also have been very large. Not one merchant ship that was fitted with the paravane was hit by a mine, the apparatus cutting the wire and releasing the mine before it could do any harm.

The 200 British war vessels that were fitted with the protective paravane cut 53 mines, which would probably have sunk £60,000,000 worth of ships.

After the paravane was adopted owing to the perseverance of its inventor, the merchant ships sunk by mines decreased from eighteen a month to three or four.

23:59 O'CLOCK

The Continental system of timing railways has been adopted on the British railways that connect by steamboats with the railways of France.

The hours begin at midnight with .01, which is one minute past midnight. Noon is 12. Our three in the afternoon is 15. The last minute before the close of the day at midnight is 23.59.

This method of naming the hours is quickly mastered, and it does away with the confusing use of the same figures for different parts of the day—a.m. and p.m.

A HERO'S MOTHER

The mother of Lord Allenby is now the oldest inhabitant of Felixstowe, where her distinguished son has been visiting her. He said to her neighbours that to his mother he owes everything in the world, and it was made clear to him that they thought equally well of her.

CHILDREN'S NEWSPAPER

OCTOBER 4 1919

Difficulties

LIFE without difficulties would not be worth living. It would be fit only for the feeble and the cowardly.

A difficulty is an opportunity to prove a man's courage, resource, and strength, and a courageous, resourceful, strong man who has no difficulties to overcome is like a batsman without a bowler. A good batsman finds pleasure in difficult balls; a good mathematician finds pleasure in difficult problems.

Nobody who is worth anything likes things to be too easy. It is not easy to win a goal at football or make a century at cricket; it is not easy to paint a great picture; it is not easy to learn to read Greek; it is not easy to learn to play a violin. There are difficulties to surmount before anything worth doing can be done, and the greater and bigger and better a thing is the more difficult it usually is to do it.

But a strong man rejoices in his strength, and realises that the struggle itself is a good thing. Even apart from anything achieved, struggle is a good thing; it makes a man. It is effort with the muscles of the arms and legs that makes them strong; it is exercise with the brain that makes the brain clear. It is not easy work that will develop all the strength God has given us.

Opposition is the secret of growth. We need tough things to tackle. Even our teeth, as dentists tell us, decay unless we get tough and hard food to bite. It is easier to realise this in physical things than in mental things; we can see with our eyes that a boy who does not play games, and who is a slacker, becomes soft and flabby and unmanly. But it is exactly the same in mental and moral things.

A boy who shirks mental work, and will not fight with his brains, soon has no pleasure at all in using his brains, and soon, indeed, has not much brains to use. A boy who tells lies because it is difficult to tell the truth, or does cowardly things because it is difficult to do the brave thing, loses all will power and becomes a moral weakling; and a boy mentally slack and morally weak is even more to be pitied than a boy physically feeble. Difficulties are the salt of life, and salt is even more necessary than sugar.

Of course, at times there are difficulties that the strongest and bravest man cannot surmount—such difficulties as disease and death; but even then we can win a great victory by facing defeat in a manly and brave spirit. If we cannot conquer a difficulty, we can at least refuse to let it conquer us.



THE EDITOR'S TABLE

Fleetway House, Farringdon Street, London
above the hidden waters of the ancient River
Fleet, the cradle of the journalism of the world

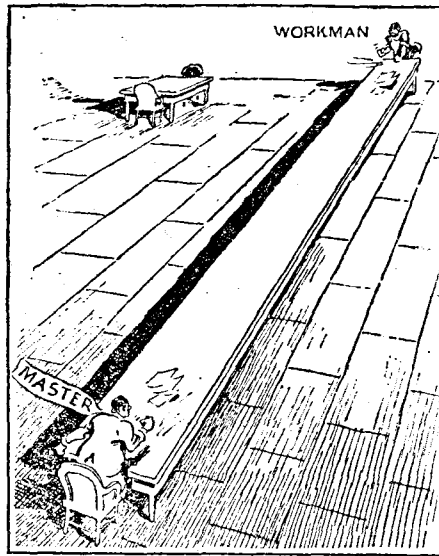


A Chance for Mr. Fisher

ONE of the little stories told at the British Association meetings suggests a great opportunity for Mr. Fisher, the Minister for Education.

The story is of an eminent statesman, who was heard to suggest that an electrical deficiency of 98 per cent. might be increased fourfold!

It reminds us of the Chancellor of the Exchequer who, when he came across a row of decimals, wanted to know "what those funny little dots were." If there are many such people in authority over us, the Board of Education might do much worse than to run a little Fourth Standard for M.P.'s in the dull hours of Parliament.



Half the labour troubles arise because masters and workmen will not come nearer together

Why Not Sit at the Small Table?

Hats

A LONDON draper has dropped into poetry, and advertises:

After the holiday
Life's very flat;
Break the monotony,
Buy a new hat!

Our advice is to wait till hats are cheaper and in the meantime to go on wearing the old ones.

Comfort on the Railways

WE hope the Government, which is not managing the railways very well, will accept the idea of the Dean of Durham. The smokers of late years have taken full possession of the trains, in spite of the law, and it is difficult to find non-smoking carriages now.

The Government allows three carriages in four to be used for smoking, and it does nothing to stop the smoker when he takes the fourth as well. The result is that those who object to smoking are made to seem discourteous, or else to endure unpleasantness in the interest of a selfish smoker. If smokers were always gentlemen—or ladies!—the matter would not arise, but it seems difficult for smokers to realise that smoking may be a nuisance to others.

What the Dean of Durham suggests is that it would make travelling much more pleasant if, instead of labelling carriages SMOKING, those carriages were unlabelled, and the others labelled NON-SMOKING.

It is a simple way out of a constant difficulty. The pity is that a decline in manners should make it necessary at all, but that is the way of the world.

Doing Without

CONSCRIPTION will die hard, but it will go with militarism and all other foul things. That is a clever saying of General Sir Archibald Hunter, pointing out that two countries are to do without conscription straight away: Germany because she is not allowed to have it, and Britain because she will not have it.

Fear Not, Little Islands

From the Bible

KEEP silence before Me, O islands; and let the people renew their strength.

Behold, all they that were incensed against thee shall be ashamed and confounded; they shall be as nothing; they that strive with thee shall perish.

Remember ye not the former things, neither consider the things of old. Behold I will do a new thing; now it shall spring forth.

Awake, awake, put on strength; awake as in the ancient days, in the generations of old. Fear not, for thou shalt not be ashamed; neither be thou confounded, for thou shalt not be put to shame. Ye shall go out with joy, and be led forth with peace: the mountains and the hills shall break forth into singing, and all the trees of the field shall clap their hands.

Violence shall no more be heard in thy land, wasting nor destruction in thy borders; but thou shalt call thy walls Salvation and thy gates Praise.

Thy sun shall no more go down, for the Lord shall be thine everlasting light, and the days of thy mourning shall be ended. Thy people shall inherit the land for ever.

Listen, O isles, unto Me; and harken, ye people, from afar.

Tip-Cat

SIR THOMAS LIPTON thinks that "having conquered the globe, we must come down to earth." Apparently our conquest of the globe was merely a star turn.

A pit without any miners: Arm-pit.

"The world is on the operating table," says President Wilson; and he might have added that with so many doctors cutting it up it will be lucky if it ever gets off again.

What did the hose-pipe? Little drops of water.



PETER PUCK
WANTS TO KNOW

If the Miners Drive the Pit
Ponies Down the Shafts

Then we can't believe they are anxious that things should take a turn.

M.P.'s are going to use the kinema for propaganda. There are so many of their doings they would like to screen.

£1000

FOR BRIGHT BOYS & GIRLS

47 Children Helped Up the Ladder

WHAT THE CHILDREN'S NEWSPAPER FUND IS DOING

Our readers will wish to know what has been done with the £1000 promised to help bright children whose parents find the cost of carrying on their education beyond their means.

A large number of applications have been received from every part of the United Kingdom, and continue to come in each week. It is clear that some assistance of this kind was greatly needed, and that the help we have given has enabled education that would have been lost to be obtained by children who show distinct promise.

The Total Grants

All who have applied have been answered, and the grants made have been forwarded. Those grants have helped 47 candidates, 20 boys and 27 girls, attending 46 schools.

The amounts distributed, or for which we have accepted responsibility in the future, total £938 8s. 6d., leaving £63 11s. 6d. reserved.

As the needs which make these grants desirable have been made known to us in confidence, we do not think it would be kind or wise to publish the names of the recipients, though some of them feel obvious pride in their success.

Points of Interest

Some points of interest arising from the scheme may be noted.

A large majority of the applications were reasonable in spirit, and appreciated our aims thoughtfully.

Some, however, did not realise that the object was educational and not philanthropic only, while others made unreasonable claims. Some boldly claimed £200 out of the £1000 available, and an aggregate of £100 was not an unusual suggestion. Such applicants clearly had not in the least appreciated the general usefulness of the scheme.

Requests for fees, and for travelling expenses to country schools, often did not name the actual amounts.

A number of candidates put forward were obviously too young to enter secondary schools.

Town and Country

One general difficulty was that applications from rural areas showed clearly the public neglect of education in some of those areas compared with the cities. The towns have arrangements by which the promising child is helped to make good its promise, but that is less usual in country districts. We were asked, in consequence, to do what the public spirit of such districts had neglected to do. In these instances the thought of what was good for the child prevailed; but it is not pleasant to subsidise the scandal of public neglect.

The most pleasing features of the correspondence respecting the scheme were the evidences it gave of the earnest desire of parents, particularly mothers—nearly always widows—to secure the best education possible for their children; and the fine spirit of the teachers towards their scholars. A successful application by a teacher often meant the loss of a bright scholar to the school, but the advantage to the child outweighed all such considerations, and teachers generally have shown a cordial interest in their pupils, and a willingness to co-operate with us in giving practical help.

October 4, 1919

The Children's Newspaper

EARS OF A WIRELESS MAN

CAN HE PICK UP THE LANGUAGE OF FLOWERS?

Wonderful Beam in Space
PICTURES SENT BY WIRELESS

By Our Marconi House Correspondent

The new discovery of trees as wireless listeners shows how Dame Nature overhears us; now we can return the compliment by listening to Dame Nature's own messages.

There are some sounds which the human ear cannot grasp. Sound is vibration, and if the vibration is slow or rapid beyond certain limits, our ears, which work over only a limited range, are unaffected.

Some bats and beetles, for instance, give out noises which are beyond our range; and it is possible to make a whistle with a note so high that only certain animals can hear it. Yet wireless men know of a way to make such sounds audible, and they do it every day at a modern wireless station. It is quite easy. All one has to do is to mix the very fast vibrations with some slower artificial ones; the mixture is then neither too low nor too high, and can be easily heard.

By applying this method to Nature's voices it should be possible to hear a thousand unsuspected songs from our tiny fellow-creatures, and perhaps even to bring "the language of flowers" within the realm of fact; who knows?

We must wait, however, until the matter is investigated.

Photographs Sent by Wireless

It is not hard to understand how wireless messages are sent, because we know that all we have to do is to produce sounds in a telephone corresponding to the well-known Morse Code; but the idea of sending a photograph through space is more difficult to comprehend. Scientists, however, turn all seeming impossibilities into accomplished facts, and before very long it will be possible to take a photograph in England at, say, ten a.m., and publish it in the evening edition of a South African newspaper.

Mr. Marcus J. Martin, who has been working steadily at the problem for some years, has already succeeded in reproducing very fair wireless photographs, and it only remains to perfect the process and overcome the technical difficulties which arise when the distance of transmission is increased.

Wireless Way-Finder in the Sky

Thanks to the invention of the wireless direction-finder, navigation is no longer so dependent on observations of celestial bodies, but a further aid will in future be at the service of the airman.

It was originally proposed to erect a system of illuminated signposts, distinguishable from each other, by means of which it should be possible for an aviator to find out over what part of the country his machine is flying. Now, however, the Marconi Company have produced a special transmitter which is able to throw into space a beam of wireless, just as a searchlight throws a beam of light. This beam can be spread over an area of any desired size, and can even be concentrated over a small spot.

Up till now wireless transmission has generally been spread over a circle with the transmitter as its centre, which was useful for distress calls, but was a nuisance in several other ways. This new invention is a great improvement, fraught with wonderful possibilities.

Consulting a Doctor Across Space

A doctor on an American transport in mid-ocean recently prescribed for a patient on another ship by wireless. The two transports were 15 miles apart and 500 miles from the nearest land, and a consultation was held by wireless between six doctors on the two ships.

BURNING FISHES TO DRIVE A TRAIN

Strange uses are found for familiar things in Russia, where war has reduced all industry to chaos.

As the mines have ceased to be properly worked there is a great shortage of fuel, and in order to make good the deficit, and keep the line working, the officials of a railway in Turkestan have been burning fish in the locomotives.

Fishermen of the Aral Sea have been made to supply the uncommon fuel in thousands of tons, and the fish, when dried, burns readily and drives trains.

The usefulness of fish as fuel arises from the fact that their bodies are heavily charged with fat. There is one species, closely allied to our British smelt, called the candlefish, which is so fat that it cannot be cooked; under the effect of heat it simply turns to oil. But the natives of the Pacific coast of

America, where it is caught, know what to do with the candlefish. They dry it, set it upright in a vessel, and use it as a candle. The same thing can be done with a Brazil nut when it has been peeled. Fish oil and pine chips may have been the first illuminants used.

So rich in this direction are the fishes the skuas eat that the parents feed the young birds entirely on oil, which they pump from their crops down the throats of the hungry youngsters. Whoever would dream that these cruel but magnificent creatures of the winds and waves are brought to princely power on a diet of pure oil?

They retain their oiliness always, and Sir Francis Galton found that fishermen in the far Scottish isles dry their birds, cram a wick down their throats, and use them most successfully as lamps.

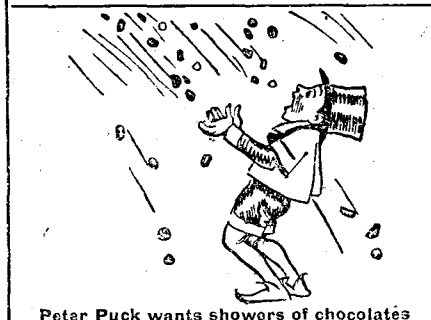
SHOWERS OF BLESSINGS



There was a herring shower not long ago



There have often been showers of little frogs



Peter Puck wants showers of chocolates



And a shower of apples and plums



A shower of penknives, marbles, and tops



And a shower of pennies and threepenny bits

Peter Puck has been reading of showers of fishes and showers of frogs, and he would like somebody to arrange for other kinds of showers

THE SPOKES OF THE CARROT'S UMBRELLA

The flowers of the common carrot in the garden and of the wild carrot by the wayside are arranged in a beautiful radiating umbrella, or umbel, at the top of the stalk. In late summer, when the fruits are formed, the spokes of the umbrella are all bent outwards, a little like those of an umbrella blown inside out. This is seen in very dry weather.

Sometimes, however, the same spokes of the umbrella are all turned inwards, like a half-closed hand, and this occurs in very damp weather. The flower-stalks, or spokes, even when practically dead, are able to move, and their movements have really something to do with the amount of moisture in the plant.

It is not that the carrot is foretelling the weather; what we see is the result of the condition of the flower-stalks as regards the amount of water in them.

If we cut off a fruited umbel of the carrot and stick its stalk into water,

the spokes all bend in, forming a sort of closed basket. If the water dries up and the air in the room is dry, we may see the unfolding of the same spokes. The movement is due to the fact that certain fibres inside the stalk elongate when there is plenty of water in them, while others do not elongate so much, the difference being due to differences in the structure of the two sets of fibres.

A Swiss botanist has lately proved that the fibres concerned in this movement lie to the upper half of the central bundle running up the flower-stalks, or spokes. The use of the movements seems to be to make sure that the fruits of the carrot are scattered. Those near the margin of the umbrella are shed in autumn; those nearer the centre are kept during the winter in the closed basket, and are set free in spring.

It all works well; there are two times of seed scattering.

WILD MEN OF FIUME

D'Annunzio and His
HotheadsPOET LEADS A FRENZIED MOB
AGAINST THE GOVERNMENT

By Our Political Correspondent

Perhaps the most difficult question to be settled by the statesmen of Europe has been the future government and use of the port of Fiume, on the eastern coast of the Adriatic Sea.

By her treatment of this question, Italy has decidedly lost ground in the good opinion of every country in Europe. The Italians are naturally an excitable people, and their feelings have been worked up to such a pitch of passion that many of them can only see what Italy means to have, without any regard for all the rest of the world.

Blinded by Selfishness

A few thousand Italians form a majority in the town of Fiume, which lies on one side of the harbour and the stream that enters its bay; but the people on the other side of the bay and stream are not Italians, and the country inland, which has its natural outlet to the sea and the world at this spot, number as many millions as the Italians are thousands. Yet the Italians would like to command this outlet, regardless of the natural rights of these millions.

That cannot be. All who are not blinded by selfish passion know it cannot be. Italian statesmen know it cannot be. But, excited by wild talk and wild writing, many Italians madly declare that it shall be.

Port Held by a Rabble

A final meeting of European statesmen had come to a just decision, very favourable to Italy, which was to have the town of Fiume, while the port was held under the League of Nations for common use by all. While the settlement was being made, British and French troops held the town as neutrals.

But this wise arrangement did not suit a hot-headed section of the Italians, who are lowering their country in the opinion of all just-minded observers; and so D'Annunzio, a poet, novelist, orator, and airman, who has been stirring up mischievous excitement where good judgment was needed, secretly planned a seizure of Fiume by a mob of mutinous Italian soldiers and seamen, in defiance of his own Government and the Allies, and the town was occupied with a rush by this rabble, led by the wild man D'Annunzio.

Figures of Scorn in History

The immediate danger was that the British and French might have resisted, and terrible bloodshed would have followed; but as D'Annunzio was first of all defying his own Government, and causing mutiny among their troops by his mad speeches, the Allied commanders wisely left the Italians to settle their own dispute, and withdrew their soldiers into the barracks, leaving the Italians to parade the streets and be as foolish as it pleased them to be.

What every thinking man or woman, boy or girl, should learn from this escapade is the danger and wrong of passionate people taking the law into their own hands, and doing, under the influence of momentary excitement and by sudden force, what is mad and unjust.

Such actions, wherever they occur, whether at Fiume or at Luton or in Ireland, never can be right and never can have good effects. Countries or towns can only be governed well by good judgment which sees all sides of difficult questions; and men of the D'Annunzio type are not heroes, but short-sighted madmen leading thoughtless, feather-brained people into conduct that harms their country and wrongs mankind, so that when the excitement passes they remain not heroes, but figures of scorn in history.

J. D.

100 MILLION TONS OF COAL DROWNED WATER-LOGGED MINES OF TIPTON

Two Ways Out of a Great Disaster

SUGGESTED TUNNEL WATERWAY TO THE SEA

One hundred million tons of coal wasted! The fact is almost unbelievable when there is such a world-wide shortage of coal; but it is true. This vast quantity of coal—and probably much more—is lying submerged in the mines of South Staffordshire at Tipton.

"Flooding-out" is a danger ever present in coalmines, for the water is continually making its way in; and pumps are constantly at work to keep the water in check and prevent the mines from becoming water-logged.

Pumping Breaks Down

Some months ago the pumping machinery in the Tipton mines broke down and the dreaded flooding-out became a grim reality. Immense quantities of water, finding its progress unchecked, flowed rapidly into the workings and filled the mines.

Considerable time elapsed before new plant could be installed; and then strenuous efforts were made in an endeavour to clear the mines. Man pitted his artificial strength and all his ingenuity in a long and bitter struggle with Nature, but his puny efforts have failed. The pumping operations have now been abandoned as hopeless, and the water daily increases in volume. Things go from bad to worse, and unless something is quickly done the mines may be utterly drowned.

This will mean a tremendous national loss both in coal and other ores, and in the financial security of the taxes levied on the minerals, for the district is rich in valuable ore.

Underground Waterway

Some years ago a scientific man made the suggestion that the mines should be drained in a natural way by means of a large sewer from Tipton to Worcester. Tipton is higher than Worcester, and the necessary downward slope could have been easily obtained. Had the project been carried out the present calamity could hardly have occurred.

Now, however, since tunnelling has attained such marvellous scope and efficiency, the idea has been elaborated, and it is suggested that a huge tunnel, 30 feet wide, should be made to the Severn at Worcester, through which the water could be drained away. This tunnel would also be used as a commercial waterway from the Midlands to the sea, allowing the passage of 200-ton barges which would be drawn through the tunnel by electricity. That in itself is a great idea, well within the bounds of possibility, and its realisation would mark a triumph of engineering.

The Water Chain

That is one way of averting the disaster of the utter loss of these coal-fields; another way would be to try to pump the water out of the mines with the new chain pump that has lately been invented. All that is needed in this case is the dropping of a chain down the shaft into the water, and the chain, working round and round by electricity, will bring up the water in enormous quantities.

A tremendous advantage of this chain pump over all other pumps is its great simplicity and the entire absence of valves, and it is claimed that it is quicker, cheaper, simpler, and more effective than any other pump known. One of these pumps is now working in London, and it is declared that it would be possible by this chain to pump the water of the Thames over the dome of St. Paul's, if such a chain could be set up.

GORGAS GOES TO PERU CLEANING UP AN ANCIENT LAND

New Task for the Maker of the Panama Canal

A WIZARD OF HEALTH

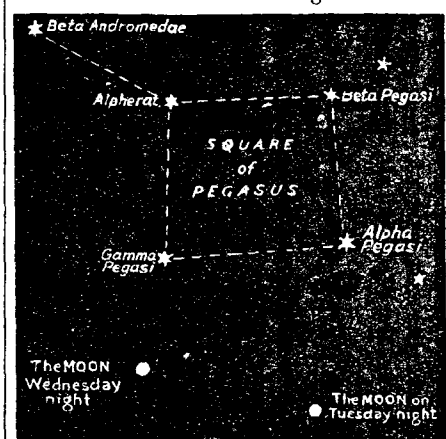
Peru is reforming herself. When cholera swept like a recurring, destroying flame throughout England in the last century good Dean Buckland made the flesh of respectable England creep with his cry from the pulpit of Westminster Abbey, "Wash ye, make you clean." He demanded proper sewers, proper drinking supplies, and proper baths. Now a similar voice seems to be stirring old Peru, for its government has done a notable thing.

It has appointed Colonel Gorgas to make the land sanitary, to banish malaria, yellow fever, bubonic plague, and other fell diseases from the entire Republic. He will sever the land, he will create healthy drinking supplies, he will supply baths, exterminate vermin and rats, dry up breeding-places of death-dealing mosquitos, and make this old land healthy, clean, and pleasant.

Rich Empire 800 Years Ago

Gorgas is an American scientist, whom we have taught. It was Sir Patrick Manson, Sir Ronald Ross, Sir David Bruce, and other giants still happily with us who discovered how these revolutions could be wrought by cleanliness and care; and Gorgas, having applied our lesson to the cleansing of Cuba, made the Panama Canal possible by the same methods.

And now he is to make Peru sanitary. What a strange thought it is that only now, at the end of the second decade of the 20th century, is this great transformation to come about. For, think of it, Peru had a rich and amazing civilisation



at least eight centuries ago, when misery and ignorance overspread England and a large part of Europe. Four centuries before the first Spaniard set foot in the land Peru was a mighty empire, with a wonderful government, incomparable riches, and an architecture challenging the greatest of old Egypt, Assyria, and Babylon.

Story of the Little Napoleon

They lived in unhealthy splendour, perhaps injured to disease. Half the people of Peru today are descendants of the very people over whom the great Peruvian emperors ruled.

When Napoleon III., a small, mean man who sometimes had fine ideas, sent for an English scientist to help him with suggestions, he asked him what he should do. The Englishman answered: "Sire, Caesar found Rome built with brick and left it built of marble: it will be a great thing for you, sire, if posterity can say that you found Paris a city of smells and left it sweet!"

The present Government of Peru found that land of undying romance dying of filth, foul though beautiful, as the ancient emperors left it. They have now bidden Colonel Gorgas do for Peru what Napoleon III. was bidden to do for Paris; and he will do it.

MOON 25,000 MILES NEARER

Lifting up the Earth
EFFECT ON THE ROCKS
AND ON A SHIP AT SEA

By Our Astronomical Correspondent

The Hunter's Moon will be supreme in the heavens during the whole of next week, her brilliance being more than usually intense, so that all but the brightest stars will be obscured and all the comets will be invisible.

This October Moon, dedicated by country folk to hunters, follows the Harvest Moon, which it always rivals and often excels in brightness. Towards the end of next week, if fine, we shall see this Moon at her best, for not only will she then be full but we shall be 25,000 miles nearer to her than we were a week ago, with the result that our beautiful satellite will appear one-seventh larger and much brighter than on many occasions of full Moon.

When the Moon is Over a Ship

25,000 miles is a great journey, but the Moon saves us from having to make it, for she comes down to us, practically all the way, but not quite all the way. Mother Earth advances just a little way to meet her. It is the Moon that draws the Earth nearer to her—she lifts the Earth bodily a few feet towards her, and the oceans that are under her two or three feet nearer still.

She even lifts you and me towards her when she is passing above us, so that were we to try high jumping we should jump just a tiny fraction higher than if the Moon were not there; in fact, nothing weighs quite so heavy when the Moon is high up above us, for her gentle lift reduces the weight.

Fortunately for trade, the difference is imperceptible in our ordinary world affairs, but a vessel weighing 10,000 tons is actually between two and three pounds lighter when the Moon is high up in the sky!

Straining the Rocks

There is good reason to believe that this gentle lifting by our satellite is not altogether a good thing for the Earth, as it must cause a slight continuous stress and strain on the strata and rocks beneath us, and so contribute to a slight extent to the production of earthquakes and fractures.

Now what we have been considering is the tidal effect caused by the Moon, and those at the seaside towards the end of next week should find high tide nearly twice as high as at the beginning of the week. This is because it is full Moon, but in addition it will be still higher by about one-fifth because the Moon is 25,000 miles nearer to us.

This is what is known as an exceptionally high spring tide. They lead to many disasters round our coasts when, as occasionally happens at this time of the year, a powerful south-west or north-east wind happens to blow at the same time. This is when we read of great inundations taking place, dykes breached and piers and promenades broken and large tracts laid waste. A high spring tide adds greatly to the possible havoc of a storm.

Great Square of Pegasus

During next Tuesday and Wednesday evenings the Moon will pass below the stars composing the great Square of Pegasus. This is one of the great landmarks of the sky during autumn nights, and should be carefully noted with the aid of our star map.

These four stars, of which three belong to Pegasus, the mythical winged horse, and one (Alpherat) to the glittering Andromeda, the chained maiden, constitute a striking sign-post to guide us to some less obvious but stupendous wonders that lie just within our ken on a dark night down those sparkling vistas of never-ending space. G. F. M.

WONDER-BOX IN THE OCEAN BED

PHOTOGRAPH TAKEN
DOWN IN THE SEA

The Lost Ship with Its Chests of Gold

HOW SCIENCE SENDS OUT ITS MESSENGERS

There lies at the bottom of the Atlantic, off the coast of Donegal, the good ship *Laurentic*.

In her hold is gleaming treasure, chests of gold which were to have been carried to America during the tumultuous days of the war. Divers are at work recovering the buried bullion, and to help their work science has devised a wonder-box.

The wonder-box is the first of deep-sea cameras. Owing to the tremendous water pressure of nearly 54 pounds to the square inch the camera had to be specially made and enclosed in a massive water-tight iron tank, lighted by a window of thick glass—a ship's porthole, in fact.

Box that Climbs the Sky

When all was ready, a diver took down the guarded camera, after which electric bulbs were lowered to the same depth. Then someone in a steamer on the surface touched a button. The plate of the camera was exposed, the electric bulbs glowed, the deep sea was lighted up, the *Laurentic* was revealed, and the camera took its photograph.

So man makes another instrument to magnify his powers; his wonder-box does for him what he cannot do for himself. Science has many wonder-boxes which it sets to work in situations where actual human observation is impossible. A kite balloon is released from the deck of an ocean-going steamer. It climbs the sky five miles high, and hangs invisible on the wings of the wind, recording, by means of a wonderful mechanism, the density and pressure of the air, the degree of moisture, the direction and force of the winds.

Witnesses from Neptune's Kingdom

All manner of startling devices search the abysses and bring up witnesses to tell the tale of Neptune's kingdom: dredges revealing fishes stranger than fancy has ever depicted, astonishing evidences of teeming life at the bottom of sunken frozen seas; evidence to show that continents are wearing down and floating out to sea, there to lay down the foundation of continents that will some day rise above sea-level and upset the balance of land and water as we now know it.

Other wonder-boxes grind and thrust their way through rock and bring up in thin, hollow cores specimens of the strata through which they penetrate. They tell of surprising minerals and metals lying below unsuspected. These wonder-boxes, the drills of the geologist, tell him what he could not otherwise discover. At their bidding he sinks a mine and finds coal which establishes a new industry, or reaches water beneath a waste, and by its aid makes the desert blossom like a rose.

Secrets of the Future

Up in the sky, down in the earth or the sea, the wonder-boxes of science work their way, and now they have added picture-making to their record. If ever we are to learn the secret of the atom and explain the operation of the force locked up within it, some new wonder-box may have to perform the feat for us. The wonder-box entered on that path when the astounding properties of radiant matter were discovered.

That was a wonder-box working at will, photographic plates in their dark box secretly recording the rays hurled at them invisible to human eyes. The revelation of the secret of that wonder-box led to the discovery of radium, and new wonder-boxes may yet carry us to goals now inconceivable. E. A. B.

BLACK RAT HERE AGAIN

A Creature with Brain-Power

CATERPILLAR THAT LOOKS LIKE A STICK

By Our Country Correspondent

Rats are becoming a nuisance in country houses just now, as they are beginning to come indoors for the winter, and you will often at night hear a squeaking and scratching behind the wainscotted walls that is very disquieting. The best thing to drive them away is a good terrier, for they are among the cleverest of creatures and you may set your traps in vain.

The old rats, bucks and does, simply laugh at traps, and no amount of camouflaging will deceive them. They know exactly what the trap is, and if you watch quietly in a dim light you will see them come out of their holes and play about the trap, as though to show their contempt for human simplicity. Old rats are not caught by cheese.

What a Rat Will Do

The rat is extremely destructive in the house, yet he is interesting in his habits, and well repays patient study.

The common brown rat of today came to us from the Far East about 1736, and was formerly known as the Norwegian rat, because it was supposed to have come from Norway, and the Hanoverian rat, because it arrived soon after the Georges. It drove away and almost exterminated the old English black rat, so that that once familiar animal became a mere curiosity.

But in recent years the black rat has been coming back from overseas in ever-increasing numbers, and during its sojourn abroad it seems to have gained in fierceness.

The sagacity of rats is almost beyond belief. They will carry eggs up or down stairs, will empty a salad-oil bottle by dipping their tails into the bottle through the narrow neck and licking the oil off at each dip, and will gnaw through the bung and empty a cask of wine. In fact, there seems no limit to their sense and their activity.

Busy Birds

At the present time we frequently come across dead shrews in the coppice and shrubbery, probably the victims of cats. Shrews are very common objects of the countryside in October. They raise more than one brood a year, and we may sometimes find, in the middle of a field just now, a nest containing the queer-looking young shrews with their eyes not yet opened.

The coots, which are often seen with the moorhens, are beginning to gather in flocks for the winter on our coasts. Having performed their nursery duties for the season, they become more sociable, and lose a good deal of the pugnaciousness which they exhibit earlier in the year. If you see a group you can easily distinguish the coot from the moorhen by its white bill and the white patch on the forehead. The moorhen's forehead patch is red. Linnets and buntings are also collecting in flocks.

When is a Twig not a Twig?

Now is the time to look out for those queer and interesting creatures, the stick caterpillars of the swallow tail moth. They are reddish-brown in colour, and as they attach themselves by one end only to the twigs of poplar, lime, or elder, they look for all the world like so many dry stalks, and deceive us all.

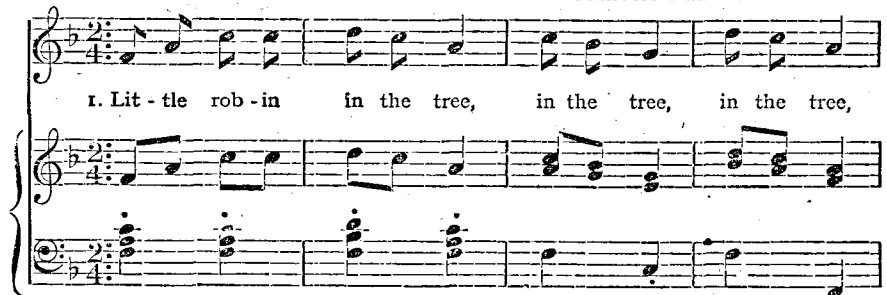
Birch, cherry, and white poplar leaves are all falling; the crabapples are ripe, and the maple is turning yellow. C. R.

A YEAR'S PATENTS

During 1918 21,839 applications for new patents were received in the United Kingdom. The greatest number ever received in any one year was 30,603, in 1909. The receipts from patent fees in 1918 were £314,431.

A CHILDREN'S NEWSPAPER SONG FOR FOUR

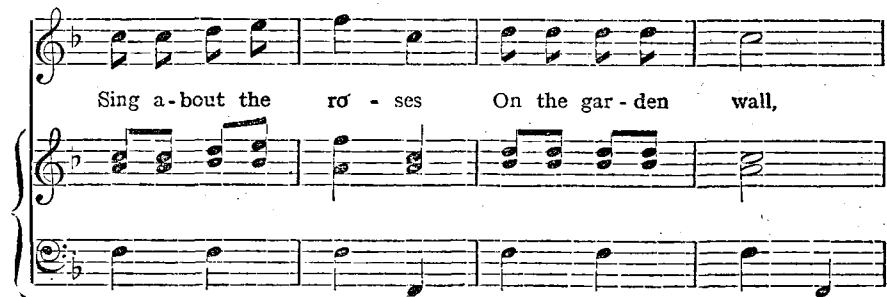
Little Robin in the Tree Music by J. Cuthbert Hadden



1. Lit - tle rob - in in the tree, in the tree, in the tree,



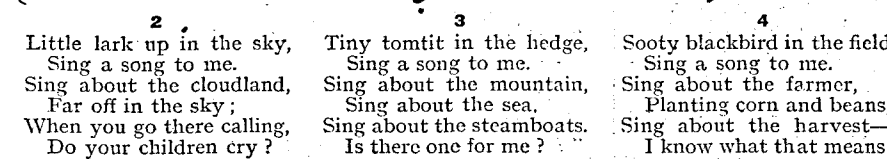
Lit - tle rob - in in the tree, Sing a song to me.



Sing a - bout the ro - ses On the gar - den wall,



Sing a - bout the bird - ies On the tree-tops tall.



2 Little lark up in the sky, Sing a song to me.
3 Tiny tomtit in the hedge, Sing a song to me.
4 Sooty blackbird in the field, Sing a song to me.

Sing about the cloudland, Far off in the sky;
Sing about the mountain, Sing about the sea,
Sing about the steamboats, Sing about the harvest—
Do your children cry? Is there one for me? I know what that means.

NATURAL FACTS OF THE DAY

The universe moves to order like a clock. Sunrise and sunset, moonrise and moonset, high tide at London Bridge, ever they come and ever they go, while nations rise and fall.

Here is next week's time-table of sun, moon, and sea, given for London, from Sunday, October 5. Black figures indicate next day.

	Sunday	Tuesday	Friday
Sunrise ..	6.7 a.m.	6.10 a.m.	6.15 a.m.
Sunset ..	5.30 p.m.	5.25 p.m.	5.18 p.m.
Moonrise ..	3.23 p.m.	4.11 p.m.	5.34 p.m.
Moonset ..	2.6 a.m.	4.40 a.m.	8.45 a.m.
High Tide ..	10.44 p.m.	12.2 p.m.	2.5 p.m.

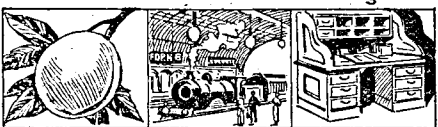
Next Week's Moon

NEXT WEEK IN THE GARDEN

Take up and store beet, in a place somewhat damp, where they will be safe from frost. Finish the planting out of cabbage for spring use. Herbaceous borders should be looked over, and where weak plants are overcrowded by stronger ones, they should be removed to a more favourable situation.

Propagate gooseberries and currants by cuttings, taking care to pick out the eyes from the lower part of the cutting and as high up as three inches above the depth to which it will be inserted in the soil. Plant deciduous trees as soon as their foliage is matured.

ICI ON PARLE FRANÇAIS



La pêche La gare Le bureau

La pêche est un fruit délicieux.
Le train vient d'arriver en gare.
Ça, c'est un bureau américain.

POURQUOI BUSBY GARDA SON CHAPEAU

On raconte que le célèbre Docteur Busby, Proviseur de Westminster School, reçut un jour la visite du roi Charles II.

Le Docteur prodigua à son souverain toutes les marques du plus profond respect, à cette exception près qu'il garda son chapeau sur la tête.

Le roi ne put s'empêcher de lui en faire l'observation, mais Busby répondit avec dignité:

"Sire, il est impossible que je laisse croire à mes élèves qu'il y ait dans mon école un personnage plus important que moi."

THE TELEPHONE SCANDAL

Is it not possible for one of the brains of the Government to attend to the telephone? The blundering administration of the telephone department is a disgrace to all concerned, and the British telephone system is rapidly becoming the worst-managed institution in the world.

CENTENARIANS AND BABIES

QUEER COMPANY ARRIVES AT THE ZOO

£1000 for a Little Hippo

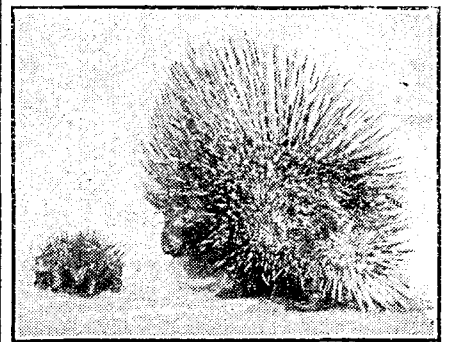
LEOPARD'S NARROW ESCAPE FROM A SHARK

By Our Zoological Correspondent

There have been many interesting arrivals at the Zoo—of infants and centenarians. An event of considerable importance is the arrival of a new hippopotamus, which has been purchased for £1000. It is about four years old, and was born at Amsterdam.

When fully grown, these creatures measure as much as fourteen feet long, and sometimes weigh four tons. They are ungainly-looking brutes, with huge, barrel-like bodies, enormous heads, and stumpy legs, but they can run with considerable speed, while in the water they display remarkable agility.

They can remain under water for as long as ten minutes without coming up to breathe, during which time they will



Mother and Baby Porcupine

frequently take a stroll along the bed of the stream.

They are entirely vegetarian in diet, and consume an enormous quantity of water-weeds, thereby proving themselves useful in keeping the rivers clear.

Among baby animals to be seen at the Zoo are two porcupines, born at the gardens a few weeks ago. Although not much larger than a rat, these little creatures already possess a covering of sharp pointed quills upon their backs.

Baby Leopard's Adventure

"Rifles," a new baby leopard, has begun his career with an adventure that nearly cost him his life.

During his journey across the seas, when nearing the coast of Sierra Leone, he fell overboard. The water was swarming with sharks, and the sailors on board expected to see him eaten up every minute. Thanks, however, to the prompt way in which the captain stopped the ship and lowered a boat, Rifles was rescued in the nick of time.

Several rheas have also been added to the ostrich-house, including two about seven weeks old. When fully grown these birds stand about four feet high. They are unable to fly, but can run with great rapidity, and when so doing they have the curious habit of raising one wing over their backs to act as a balancer.

Rheas are very fond of bathing in the water, and can swim well.

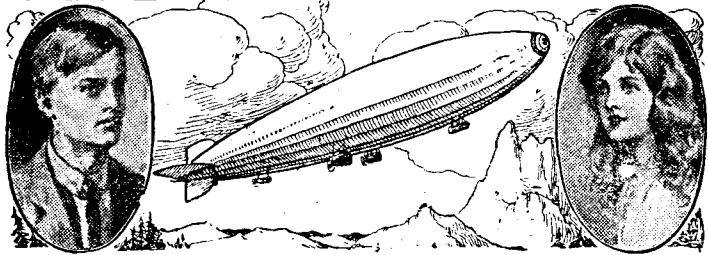
Coming Through the Centuries

Two giant tortoises, each estimated to be about two hundred years old, are also among the new arrivals.

In Aldabra, the original home of these giant tortoises, the species is now almost extinct, but in the Seychelle Islands they are reported to be thriving well.

A fully-grown giant tortoise has a shell measuring as much as five feet long. Those at the Zoo feed principally upon cabbage, a single tortoise eating as much as a bushel a week during the warm months. As the weather grows colder, however, they begin to lose their appetites until, finally, about the end of October, they go to sleep till March.

THE SKY RIDERS



A STIRRING TALE OF ADVENTURE ROUND THE WORLD

Told by T. C. Bridges, Author of "Martin Crusoe"

What Has Happened Before

Mr. Martin Hamer has built a model of an ingenious new type of airship, and the first people to see this are his son, Cyril Hamer, and Cyril's great chum, Stella Earle.

Mr. Hamer asks Stella's uncle, Mortimer Carne, the millionaire owner of the great Ajax Steel Works, by whom he is employed, for permission to build the full-size ship in his works in return for a half-share in the profits. But "Chilled Steel Carne," as the hard old millionaire is known, only offers Mr. Hamer £750 for his model and all rights.

Cyril's father, who has patented all his drawings and specifications, does not accept this offer. Carne becomes furious, and the interview ends with Mr. Hamer no longer in his employ.

His invention has run away with most of Mr. Hamer's savings, and he has no other employment in view. He tells Tim McKown, a lad employed about the house, that he cannot afford to retain his services, but Tim refuses to leave Mr. Hamer, and while they are arguing a visitor is announced.

"Did you say Kent?" Mr. Hamer asks in astonishment. "Bertram Kent—impossible!"

The newcomer himself answers, in an unpleasant voice, "Yes, Mr. Hamer, Bertram Kent, and no one else."

CHAPTER 4

During the Night

For some seconds the two men stood facing one another. Mr. Hamer seemed still to be unable to believe the evidence of his eyes.

Cyril was also staring at the newcomer. He said to himself that he did not like the look of him. Kent, indeed, was a curious figure. He was a powerful, heavily built man about forty years old. Thick black hair contrasted with a dead-white face, while his eyes under dark brows were like pools of ink. The jaw was powerful, and he had a thick fleshy nose. It was a strong face, but not a pleasant one.

"You never expected to see me in England again, Hamer?" said Kent at last, in that odd, slow, purring voice.

Mr. Hamer pulled himself together.

"That is true," he answered. "As a matter of fact, I never expected to see you at all again. I heard you were dead."

"Ah, Carne told you that!" replied Kent, with a twisted smile. "I let him think so, and I should like him to remain under the same impression. But, see here, I have called on business, and I had better go straight to the point. It has come to my ears that you have invented a new dirigible, and that you have offered the model to Carne, who has refused it."

"How did you learn that?" demanded Mr. Hamer. "From Carne?"

A curious gleam came into Kent's sunken eyes.

"I told you that Carne believes me dead. I have never exchanged a word with the fellow since you know when," he answered, and his voice had an ugly note in it. "It does not, however, matter to you where I obtained my information; you will admit that it is correct."

"It is," allowed the inventor; "but still I should like to know what it has to do with you."

"A good deal—and with you, too. I know your work. I know it is generally good. At the same time, I am aware that you have not the money to build the ship yourself. I came to tell you that, if the invention is as good as I hear, I can introduce you to a man who will finance you in building the full-sized dirigible."

"Who is the man?" asked Mr. Hamer.

"That I will tell you when I have seen the model."

Mr. Hamer hesitated. He did not like or trust Kent, and that for very good reasons. Yet he believed that the man had rich acquaintances, and he was desperately anxious to get the work in hand. At the same time he remembered that, as he had already patented his model, there could be no harm in letting an outsider see it.

"Very well," he said at last. "Come with me."

Cyril, who already had conceived anything but a liking for Kent, stayed where he was. He had some time to wait, for it was nearly an hour before he heard the two come down again. The front door opened and closed, and Mr. Hamer came into the sitting-room.

"Who is this man, Dad?" asked Cyril gravely.

"Bertram Kent, you mean?"

"Yes."

"He was Mr. Carne's partner ten years ago. The two had a desperate quarrel about something. Carne declared openly that Kent had robbed him, and, instead of suing him for libel, Kent left England, and was said to have gone to Morocco, where I heard he had died."

Cyril grunted.

"I don't like Mr. Carne, but I shouldn't wonder if he was right this time. I don't care about the looks of this chap Kent."

"I can't say that I like Kent myself," agreed his father. "Still, this is merely a business arrangement. Kent gets his commission, and there his interest ceases."

"And what is the name of Kent's friend, Dad?"

"Gaunt, of Gaunt and Marvin. They are a Bolport firm, he tells me, and are interested in aircraft. Kent is going to Bolport on Monday and will see Mr. Gaunt."

Cyril looked doubtful.

"Do you think he really will, Dad?"

"Why should he not? He will get his commission if the business goes through."

Cyril nodded.

"Well, I hope it's all right," he answered, "but personally I shouldn't put much faith in Mr. Bertram Kent. Anyhow, if Gaunt does see the model, I'm sure he'll jump at it."

"I hope he will," said Mr. Hamer, who still looked troubled. "You don't think it can have done any harm, Cyril, letting Kent see the model?"

"Of course not, Dad. And now let's get on with our packing. Remember, we move the day after tomorrow."

They were very busy all the rest of the day, went to bed dog-tired, and both slept like dormice. Cyril was a little late for breakfast, and when he hurried into the room was astonished to find his father

not yet down. He went out into the hall, and called:

"Dad! Breakfast's ready!"

There were hurried steps on the stairs. Next moment Mr. Hamer was in the hall. He was pale as death and panting for breath.

Cyril stared at him in dismay.

"The drawings!" gasped his father. "The drawings! They have been stolen. Someone has broken in through the roof of the loft during the night. The safe has been burst open and all the designs and plans have been taken."

For a moment Cyril could not speak. The shock was too great. But he quickly recovered.

"Is that all they got? They didn't take your new motive-power papers?"

"No. They were in my desk downstairs."

"And the model—is that safe?"

"That has not been touched."

Cyril looked immensely relieved.

"Then why worry, my dear Dad? You have patented all the plans. No one else can use them—at least, not for sale."

CHAPTER 5

Hard Times

Mr. Hamer looked up from the pile of papers which littered the table in front of him. Three months had elapsed since the burglary, but nothing had been discovered as to the thief.

"I have given up all hope of hearing from Gaunt, Cyril," he said wearily.

Cyril, who was on the side of the clean but shabby little cottage room, busy mixing something with a pestle in a mortar, looked round.

"I gave that up long ago, Dad," he answered. "And if you ask me, that fellow Kent has never been near Gaunt. Or, if he has, he has simply queered our pitch."

It's three months and more since he came to us first, and since then it has been nothing but promises and excuses. Kent's a bad lot. That's the long and the short of it."

The lines on Mr. Hamer's tired face deepened. Things had not been going well with him since he had left Carne's, and money grew scarcer every day. He was very anxious and troubled.

"But why, Cyril—why should Kent queer our pitch, as you put it? Whatever grudge he has against Mortimer Carne he has nothing against us."

"I don't pretend to know what his game is," Cyril answered. "But there is something going on behind the scenes. Of that I am perfectly certain. Where has Kent been all this time? He has been away from Manchester nearly the whole of the past three months. He has only been to see us twice, and his letters come from Bolport and all over the place."

"I've been thinking over it a lot," continued Cyril, frowning. "It seems to me that Kent has been doing his best to keep you from getting into touch with anyone who would take up your invention."

"But why, lad—why?" repeated his father.

Cyril laid down the mortar and turned round, facing his father. The light showed his cheeks thinner than they once used to be. He looked older, too. The two were very near the end of their resources, and even food had been none too plentiful of late.

"I'll tell you what it is, Dad," he said sharply. "It was Kent that stole our plans, and he hopes to starve us out, so that in the end he can get them for nothing. That's what it is. I'm sure of it. Why didn't I think of it before?"

His father listened with wide-open eyes. Mr. Hamer was one of those men who never thought evil of others, and Cyril's sudden accusation absolutely shocked him. Yet he could find nothing to say, for all of a sudden it was brought in upon him that what the boy had said was indeed true.

Before he could find words, there came a peal at the bell, followed by a loud knock at the door.

The Hamers had no servant now. Cyril ran to the door. The moment he unlatched it it burst open, and in, like a tornado, rushed Mortimer Carne. He paid no attention to Cyril, but dashed in upon his father. His great face was crimson with rage, and his grey eyes burned like molten steel.

"You villain!" he roared, shaking his ponderous fist in Mr. Hamer's face. "You villain! What have you done with Stella?"

Mr. Hamer merely sat and stared. He was far too amazed to be able to answer this amazing accusation.

"Speak!" shouted the ironmaster. "Speak, or—"

Cyril sprang between them. His eyes were blazing.

"What do you mean, Mr. Carne?" he cried. "What do you mean by talking like that to my father?"

Mr. Hamer recovered a little.

"If you would kindly explain," he said coldly, "then perhaps we could reply to you."

"You pretend ignorance," retorted the other, who was beside himself with fury. "You'll tell me next you don't know that Stella has been stolen away!"

"I do tell you so. This is the first I have heard of it," replied Mr. Hamer, and there was that in his voice and manner which impressed Carne, in spite of himself.

"Stella stolen!" cried Cyril in real distress. "When? How?"

Carne was silent a moment. His cold eyes roved from father to son.

"Is it possible that I am mistaken, after all? Can it have been someone else? But no. The airship was yours. I could swear to it!"

Cyril lost patience.

"For goodness' sake, explain, Mr. Carne. What airship are you talking about?"

"Your father's, you brat! Though I had but a glance at it, though it was already almost dark, I could swear to its shape."

Cyril looked him full in the eyes.

"And how do you think we could have built it?" he asked bitterly. "You know the state of our purse as well as anyone."

"I know you could not have done it, but I imagine you sold your rights."

Cyril started. "Dad," he said sharply, "it's Kent!"

The name struck Carne like a thunderbolt. He quivered, and sank down in a chair.

"Kent!" he gasped. "Bertram Kent!"

"Yes. Bertram Kent came here three months ago, and saw the model, under promise of finding someone to finance the building of the new ship," replied Cyril rapidly. "He went away, and that same night the plans were stolen. As Father had patented the designs, we did not worry greatly, but now—now I begin to see light."

The ironmaster gave a deep groan.

"I, too," he said heavily. "Bertram Kent hates me bitterly. Years ago he swore he would get even with me. Without a doubt it is he who has stolen Stella."

TO BE CONTINUED.

NOTES & QUERIES

What was the Duma? The Duma was the Russian Parliament under the last Tsar, and consisted of a representative council elected by the people. It first met in May, 1906.

What is a Casus Belli? Casus Belli is Latin for cause of war, and is anything that is made a reason for going to war. The mobilisation of her army by Russia was made a casus belli by Germany in 1914.

What are the Game Laws? The laws which give to the owners of land the right to the game that frequents their estates.

MARTIN CRUSOE

Boy's Adventure on Wizard Island

CHAPTER 73

The Luck Holds

Someone came up through the narrow hatch of the "Saga," and Martin, who was standing on the deck, fishing for mullet, looked round.

His eyes widened.

"Great Scott! Is that you, Dad? Upon my word, I'd never have known you."

Mr. Vaile, clean shaven, with his hair cut and dressed in neat white drill, was such a different figure from the worn, white-haired man whom they had brought in on the previous night, that even his son might well have been excused for not recognising him.

He smiled.

"I feel better," he said.

"Where's Ladd?"

Martin winked.

"I'm not to tell you. As a matter of fact, I don't know. All I know is that he took Willard off somewhere this morning, and when he comes back Willard won't be with him."

"I am glad," said Mr. Vaile gravely. "Since Willard has handed over the money he stole to be restored to his victims, I would not have him in prison. It is amazing how quickly he recovered, once he got that confession off his mind. He will have a chance now of starting again, and after the lesson he has had I think he will be a better man."

"I hope so, too, Dad. But what about us? Seems to me we are rather at a loose end. We haven't more than enough between us to pay the Professor's hotel and doctor's bill. We can't even afford a passage back to England."

"We must not complain," replied his father. "We are together again. Somehow we shall find means of repairing this vessel, and getting back to Lemuria."

Martin shrugged his shoulders, then laughed.

"Yes, luck's been good to us so far. Must have been those lucky stones which Akon gave me, and which, by the way, I've never looked at from that day to this."

"Wait," he added. "I'll go and fetch them. Perhaps, if we put them out in the light, they'll bring us fresh fortune."

Slipping through the hatch, he dropped down the ladder, to return in a few minutes with the little leathern bag which Prince Akon had given him.

"Here they are," he said.

Mr. Vaile took the bag, opened it and turned the contents out into his open hand.

He gave a gasp of astonishment.

"Luck stones!" he exclaimed. "Good Heavens, Martin, look at them!"

Martin looked, and his eyes fairly goggled.

"They're pearls!" he said hoarsely.

"Pearls," repeated his father—"pearls, and the finest I ever set eyes upon. Twenty—twenty-five—there are thirty-three of them, and the smallest worth at least five hundred pounds!"

For a moment the two stood silent, staring at the beautiful gems which gleamed softly in the morning sunlight.

Suddenly Martin laughed.

"The luck holds," he said. "The luck holds. Now I shall be able to do what I always wanted to do—take you and the Professor to Lemuria and introduce you to Akon and Hymer. Dad, it's going to be the jolliest holiday you ever had in your life."

THE END

Oct. 4, 1919

The Children's Newspaper

II



An Ounce of Mirth is Worth a Pound of Sorrow

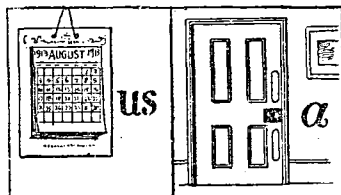


Dr MERRYMAN

"Why do you bring this to me?" thundered the weary editor, thrusting the MS. back into the hands of the poet.

"Because," replied the bard timidly, "I have no stamp."

Is Your Name Here?



These pictures represent a boy's and a girl's name. Do you know what they are?

Answers next week

Riddle in Rhyme

WE are a score, and sometimes more,
And in a cave reside;
Though seldom 'tis we disagree,
We often do divide.
In white array the ladies gay
In mirth will often show us;
From what is said, we are afraid
You will too quickly know us.

The Teeth

Poser

WHEN the lady chauffeur petted her dog, what did the carpet?

"I HAVE often wondered," remarked Snooks, dropping a penny in the slot, "where the profit on these machines—"

Here he grasped the handle. "Where the profit on these machines—"

Here he shook the machine. "I have often wondered, I say, where the profit—"

Here he shook the machine again. "Where the profit comes in. Bother the thing! It seems to be clogged this time. Nothing happens!"

"Well," said Brooks, "do you now see where the profit comes in?"

WHY do soldiers catch cold easily? Because they are so often in drafts.

Do You Live in Flintshire?

FLINTSHIRE is the shire or district of which Flint is the chief town. This name has nothing to do with flints, as those stones are not common there. In ancient documents it is called the castle on the "fluentum," or tideway, and this last word came to be spelt Flynt and finally became the name of the town that grew up on the tideway.

Alex-and-Her

THERE was a man who kept a store,
And though there might be grander,
He sold his goods to all who came,
And his name was Alexander.

He mixed his goods with cunning hand,
He was a skilful brander;
And since his sugar was half sand,
They called him Alex-sander.

He had his dear one, and she came,
And lovingly he scanned her;
He asked her would she change her name,
Then ring did Alex-hand-her.

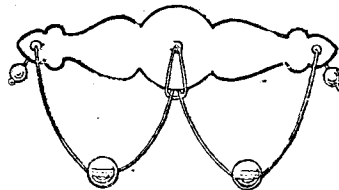
"Oh, yes," she said, with smiling lip,
"If I can be commander."
And so they framed a partnership,
And called it Alex-and-Her.

Looping the Beads

THIS is an interesting little puzzle you can make out of a piece of wood or cardboard and two large beads and two smaller ones.

The picture shows exactly how to make it, but care must be taken to get the string just as it is in the sketch. The puzzle is to get both the big beads on to one loop of string. It is done like this.

Pull the middle loop as far as ever it will come and pass the right



bead through it, then pass the loop through the right side hole over the small bead and draw it back again. Do the same with the left bead which releases the centre loop, which can now be drawn through the hole, and the beads are left hanging on the single loop. Take care not to get the string twisted when doing the puzzle.

Shopping

SHE walked into the drapery store
With stately step and proud;
She turned the frills and laces o'er,
And pushed aside the crowd.

She asked to see some rich brocade,
Mohairs and grenadines.
She looked at silk of every shade,
And then at velveteens.

She sampled jackets blue and red,
She tried on nine or ten.
And then she tossed her head and said
She guessed she'd call again.

There Was a Small Boy of Bagdad



There was a small boy of Bagdad,
An inquisitive sort of a lad.
Who said, "I'll just see
If this nice-looking bee
Has a sting." And he found that it had!

Jacko Gets a Fright

"There's a great bulldog in the next garden," Jacko said. The boys went to the fence and leaned over.

"My word! It is a monster!" said little Chimpy; "no wonder it's tied up."

"It's cruel to tie it up," said Jacko.

Chimpy opened his eyes wide.

"Why, he'd tear the garden to bits," he said, "if he had half a chance."

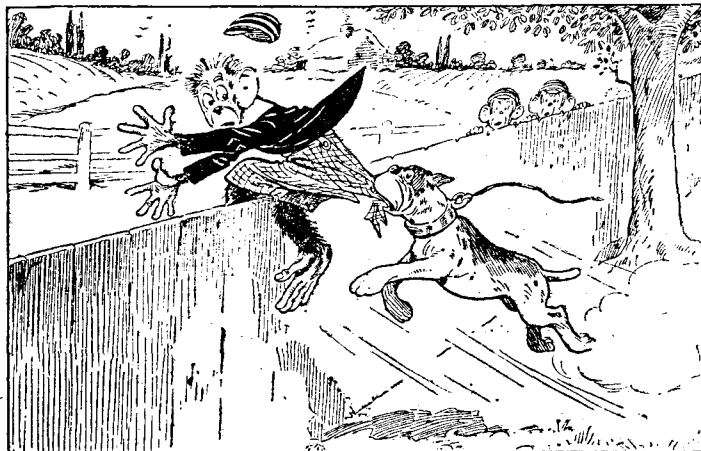
"Not he," declared Jacko obstinately. "I never knew a bulldog who wasn't as quiet as a lamb."

"This one isn't," said Chimpy—"you let him loose and see."

Jacko took out his penknife, leaned over the fence, and slashed at the cord till he cut it through. The dog gave a short bark, and tore like a mad thing across the garden.

"Look at him! Look at your little lamb!" called Chimpy.

But Jacko took no notice. "I've dropped my knife!" he said.



"You are a duffer!" said the boys; "you'll never get it back with that brute loose."

"I must," persisted Jacko; "You others will have to find a bone to keep him busy while I hop over and find it."

They got the bone and enticed the dog with it to the other end of the garden. Then Jacko climbed over and picked up his knife.

"Look out!" screamed the boys, for the dog had dropped the bone and was making a bee-line for Jacko. He caught him on top of the fence. And he held on, too.

"Help!" screamed Jacko.

Out of the house dashed a man with a stick. He shouted at the dog to let go; and when the dog refused he gave him a sharp cut with his cane—and then, to the utter astonishment of the young man, he gave Jacko another, just as sharp, and told him to "Be off!" and let his dog alone.

"Well!" gasped Jacko. "Of all the——" But he wriggled down pretty quickly, and he never let a dog loose again.

Master Inquisitive

Somewhere about the time that Milton was writing his great poems in England, a father in Paris was getting very concerned about his son, seven or eight years old. The child was becoming exceedingly inquisitive, and his father thought his mind was growing faster than his body.

He reasoned like a man, and his father, fearing that if he took up studies that developed the reasoning powers he would not give sufficient time to languages and the Classics, decided to keep from him all knowledge of geometry.

Soon after, he was astounded to find the boy with a piece of charcoal working out on the floor what appeared to be the 32nd proposition of Euclid. Without any aid he had reasoned out for himself, in the very same order as Euclid, of whom he knew nothing, the principles of geometry up to this proposition.

It was one of the most amazing things that has ever happened, that a boy of eleven should, by clear and independent reasoning, have arrived at identical conclusions along the identical road followed by the ancient sage.

The father saw it was no use any longer to suppress the lad, so he gave him every opportunity, and the wonderful boy responded in a way that seems incredible. Having heard a plate give forth a note when struck, which stopped when the plate was touched, he made the subject a matter of daily study till he had worked out the principles of sound, which he set forth in a learned treatise.

At twelve he had mastered the whole of Euclid without assistance, and at sixteen he published a learned treatise on Conic Sections. At nineteen he invented a calculating machine which is called by his name.

It is impossible to say what this wonderful boy might not have accomplished had he enjoyed robust health. But the fire had burned too fiercely. Weakened health led to depression of mind. He gave up science and practised the greatest austerities of religion, wearing a spiked belt to mortify his flesh.

Gradually his mind became morose, but he wrote a famous book in the form of letters, and, later, set down his thoughts on life on pieces of paper which he threaded together on a string. These thoughts were published after his death. At last he came to fear nameless terrors, and on August 19, 1662, passed away a premature old man aged 30. The world's verdict today is that he was one of the greatest geniuses that ever lived. Here is his portrait. Who was he?



The Schoolboy Last Week was Sir David Wilkie

Adventures of Augustus and Marmaduke

In a field close by the town came down an aeroplane.

"Let's get inside," said Marmaduke, "and start it off again."

So in they got. Augustus said, "This is the rod to pull."



He pulled it, and the aeroplane soared like an angry bull.

And then it rushed along the ground and round and round again;

They couldn't stop it though they pulled with all their might and main;

Still on it dashed through fields and roads, through hedges and through streams,

And none could help them, though all heard their shouting and their screams.

At last into a mighty oak the aeroplane did run,

And Augustus and young Marmaduke thought, "Well, this isn't fun."

And in a heap upon the ground, with many an ache and pain, Augustus lies with Marmaduke and the damaged aeroplane.

The Children's Newspaper grows out of My Magazine, the monthly the whole world loves. My Magazine grew out of the Children's Encyclopedia, the greatest book for children in the world. The Magazine appears on the 15th of each month, and the Editor's address is: Arthur Mee, Fleetway House, Farringdon St., London, E.C. 4.

CHILDREN'S NEWSPAPER

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HAPPY DAY AT RHEIMS. GREAT MAN'S MOTHER. WORKMAN UP NELSON COLUMN



Emir Feisal, who has come to London to plead the cause of the Arabs of Syria



Procession of the children of Rheims at the fête held to celebrate the rebuilding of their city



General Diaz, who led the Italian army to final victory, and is visiting London



Nancy Griffiths, aged 12, the youngest golfer at Stoke Poges girl's championship



Up in a swing so high—School children of Fulham keeping the peace at Hurlingham



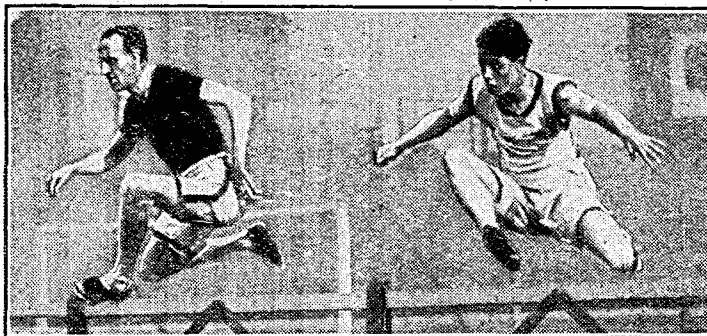
Barbara Griffiths, aged 13, in the girl's golf championship at Stoke Poges



The Skootamota, which climbs hills at 12 miles an hour



Chanticleer! Belgium's first memorial to her dead



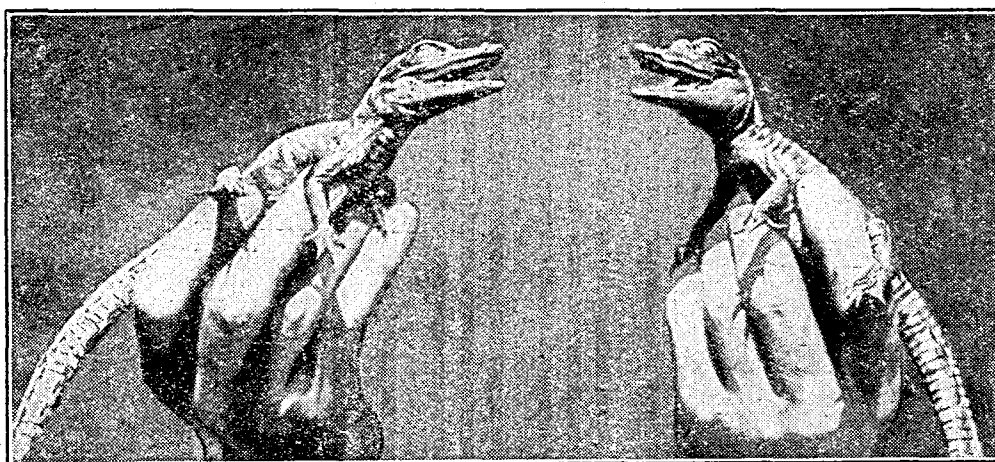
The winner leaps the last hurdle in the 120 yards championship at the Discharged Soldiers and Sailors' Sports at Stamford Bridge



Washing Nelson's face in time for Trafalgar Day. See page 3



Terrier which was imprisoned four days in a badger-hole near Nottingham. See page 2



The two baby alligators at the Zoo



Lord Allenby's meeting with his mother, the oldest inhabitant of Felixstowe, aged 86